ISLAMIC AND CONVENTIONAL BOND FUNDS PERFORMANCE IN MALAYSIA: A COMPARATIVE STUDY

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ABSTRACT

This study is conducted with the aim to compare the performance of Islamic bond funds to the performance conventional bond funds. Two samples were generated and utilised in this study and the performance comparisons are also made 2 samples (first sample: 21 Islamic Bond funds and 49 Conventional Bond funds and second sample: 18 Islamic Bond and 45 Conventional Bond funds are used respectively) to cater for performance inconsistency of the funds and the influence of economic conditions. The first sample is intended to maximise the number of bond funds included in the study and the length of the study by including the data for all the active bond funds over the period from December 2010 to May 2016. In order to overcome biasness due to market condition or market influence, only Jensen Index which is market and risk adjust return is used as performance measure and the basis of comparison for funds in this sample. The second sample is set to allow for a fair comparison between funds that are launched at different years when risk adjusted return, namely Sharpe, Adjusted Sharpe, Jensen and Adjusted Jensen and Treynor Index, are used. In addition to non-adjusted and risk adjusted return, the risk and diversification of the funds are also compared. The results provides evidence that Islamic bonds are more stable than conventional bonds.

Keywords: Conventional bond funds, Islamic bond funds, Performance, Risk

ABSTRAK

Tujuan kajian ini dilakukan adalah untuk membandingkan prestasi *sukuk* dan bon konvensional. Perbandingan prestasi ini akan dibuat berdasarkan beberapa jangka masa yang berbeza yang akan meliputi 2 sampel (sampel pertama: 21 *sukuk* and 49 bon konvensional dan sampel kedua: 18 *sukuk* and 45 bon konvensional). Kajian ini mengambil kira prestasi *sukuk* dan bon konvensional yang tidak konsisten dan faktor keadaan ekonomi. Sampel pertama adalah untuk memaksimumkan bilangan bon konvensional dan *sukuk* bagi meliputi jangka masa yang lebih panjang kerana semua bon konvensional dan *sukuk* yang aktif sepanjang tempoh Disember 2010 hingga Mei 2016 diambil kira. Bagi mengimbangi impak dari keadaan pasaran atau pengaruh pasaran, hanya Indeks Jensen yang mempunyai penyesuaian berdasarkan faktor pasaran dan risiko akan digunakan sebagai ukuran prestasi dan asas perbandingan bagi subjek-subjek dalam sampel ini. Sampel kedua ditetapkan untuk membuat perbandingan yang adil di antara *sukuk* dan bon konvensional yang telah dilancarkan pada tahun yang berbeza apabila pulangan yang telah diselaraskan berdasarkan risiko pasaran digunakan dan ini akan meliputi *Sharpe, Adjusted Sharpe, Jensen*, *Adjusted Jensen* dan *Indeks Treynor*. Selain pulangan yang belum diselarasakan dan telah diselaraskan berdasarkan risiko pasaran, risiko dan faktor diversifikasi bagi kedua-dua *sukuk* dan bon konvensional itu juga turut diambil kira. Secara purata dalam tempoh keseluruhan kajian kedua-dua bon dan *sukuk* merekodkan prestasi yang agak sama. Hal ini juga adalah benar bagi prestasi kedua-dua subjek jika sampel kedua diambil kira. Penemuan ini membuktikan bahawa *sukuk* adalah lebih stabil daripada bon konvensional dan kurang terjejas oleh krisis.

Katakunci: *Sukuk*, Bon Konvensional, Prestasi, Risiko

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CHAPTER 1

INTRODUCTION

1.1. Background of Study

A bond fund is a type of investment in which investors combine their investments into a specific portfolio to obtain a return from the core objective of investment on a monthly or yearly basis. All bond funds are overseen by professionals, and classified according to investment type. Bond funds have many silent features like other unit-trust funds that attract investors such as regular income, portfolio diversification, money management, convenience and liquidity.

Experienced and highly qualified professionals are involved in managing a securities portfolio and take prompt and lucrative decision of trading on the basis of their wide research. The fund management team consists of investment analysts and strategists that evaluate the market and provide detailed market information for the selection of investments that fulfill the funds objectives.

To achieve a regular and stable income the majority of the investors will invest in a low risk portfolio. Bond funds provide income that is stable, although the amount of return will be different from market to market though.

Harry Markowitz introduced the modern theory of portfolio in 1952. It has been trusted by contemporary investors to determine their investment as it reduces risk through diversification of debt instruments to mitigate losses made by one of the investments.

Bond funds act with different debt investments to introduce a diversified portfolio purchased through several issuers (e.g. mortgage-backed securities (MBS), corporate and government), having structural differences (e.g. callable bonds, bonds that are convertible and bonds of zero-coupon), from dissimilar industries and companies with principles of varied fundamentals (Islamic and conventional). Investors are permitted by bond funds the convenience of buying or selling their shares each day. Through bond funds, investors can voluntarily again invest income from dividend and make more of investments over time. The majority of funds from bonds require less investment then minimum amount you need to pay for individual bond under diversified portfolio. Malaysia requires the least trading amount for a bond, normally a trading value RM5 million, whereas funds contributed to bonds provide a wider opportunity of investment to the investors since the smallest amount of investment can be RM1,000 from a "pool" of many investors'.

Malaysian Unit-Trust Ltd was established in 1959 and introduced for the first time, unit-trusts in Malaysia, a bond fund that is known as a Mutual Fund and was an important development for of the Unit-trust. Due to a lack of public awareness, Unit-Trust's growth was slow for nearly two decades. That began to change when the financial industry was consolidated and developed with the support of the Registrar of Companies, Malaysia's Trustee for Public, Bank Negara Malaysia and the Consumer Affairs and Domestic Trade ministry. The 1990s, saw rapid growth of the unit-trust industry due to factors that included the establishment of various types of funds and quite a number of new fund management companies being created. A further boost came from industry regulation centralization along with the security commission establishment on 2 March 1994,

enhancing the popularity unit-trusts and turning unit-trusts into household products within the Malaysia.

The main goal of bond funds is to retain potential revenue with bearable risk. Just like other investments, bond funds are subject to various risks e.g., liquidity risk, market risk, credit's risk, risk of rate on interest and risk of prepayment (Exchange Commission and securities of US).

Market risk is the most significant risk and is the result of fluctuation of a bond funds Net Asset Value (NAV). A funds NAV can vary with the changing of the original bond fund portfolio being changed by the manager of funds. Since the value of the bond funds depend on the value of primary bonds, to evaluate the performance of the bond fund it is necessary to understand bond market development, specifically the Malaysia market for corporate bonds. During the 1980s, the Malaysian Central Bank, Bank Negara Malaysia established regulations for the issuance of corporate bonds. During March 1993, a regulatory authority was developed called the Securities Commission (SC) to increase capital market growth, and in particular developed policies for the marketing and selling of modern securities.

After the 1997 Asian financial crisis, tremendous growth had been evidenced in the bond markets. The government took inventive to offer other sources of financing to corporate sectors in Malaysia through banks towards market of capital of private; the expansion of market of corporate bond in sector of banking has given after crisis (Ibrahim, 2008).

There is extensive literature on mutual equity fund performances but to date, very little has been released to address the performance of fixed funds. In 1993 Blake et.al took two bond funds as examples for study and used various models for evaluating index performance. Another study in 1995, Elton et.al, employed models of relative pricing to evaluate the performance of bond funds. The results of these study's shows that the bond funds were underperforming due to of applicable indices, factors. However, recently, several study's undertaken by numerous researchers give different performance indicators for the results of different bond funds. In 2012 Taib & Isa undertook more relevant local research; revealing that performance of fund bonds are relatively better than equity and market unit-trusts. In 2012, Swinkels & Rzezniczak's review of mutual fund manager's investment strategies operating in the Polish market revealed bond funds were better than deposits of 3 months and few are having larger ratio of Sharpe compared to index bond. Malaysia's two main categories of bond funds can be classified as: Islamic Bond Funds and Conventional Bond Funds. It is rather unexpected that the Islamic Bond funds and Conventional Bond funds relative performance revealed that Islamic bond is performing better due to wider base of investors (Ibrahim and Minai, 2012). In addition, Islamic bond funds were less affected by the financial crisis as stated by former her speeches; "Islamic finance has, thus far, remained positive, despite the current challenging global financial environment", "Islamic finance is less likely to be vulnerable to internally generated financial crises" (Website of Euro money, 29 January, 2014).

1.2. Introduction to the Malaysia Bond Market

The Malaysian bond market had expended considerably in relation to the variety of instruments and market size / productivity driving expansion in the bond market and developing a properly diversified financial base to fulfill the Malaysian economy's varying needs. Intensive measures were taken by the Malaysian Government to increase its bond market and with the accomplishments of those efforts being seen through the noticeable increase of bond market size, eventually turning the Malaysian bond market into the most rapidly emerging bond market in Asia. The Malaysian bonds market growth can be tied to the 1970's whereby bonds for the development of the country were being issued by government as agenda driver to meet Malaysia's massive funding requirement. An important role was played by the Malaysian private sector in the strategic development of the Malaysian economy during 1980s. In that period, financing from banks was a major source of funding for corporate sector, forcing corporate management to prioritize the development of a strategic bond market. Due to the Asian financial crisis in 1997-98, investors started relying heavily on loans from banks. From the crisis, the lessons that the Malaysian government learnt, was that they had maximise their energies towards the development of corporate bond market for propose of providing alternative finance sources and hence minimising funding disparities.

Historically, the major reason for credit intermediation in the Malaysian banking system was because of its undeveloped bond market. The extraction of prospective credit and compression of credit by the corporate sector during the time of the Asian crisis enhanced risk diversification inside the financial system. As a result, the development of the corporate debt market received greater focus and its development was increased to enable

larger credit risk variation between agents of economics, along with suitable maturity structures, providing more funding. Comparing the bond market's relative size with the credit of domestic banks, growth in former was very noteworthy. Another noticeable accomplishment is the success in the promotion of the Islamic bond market. Shariah compliant Islamic Bonds in Malaysia's capital market growth have played a major role in the growth of the Islamic financial system in the country. With this growth, Malaysia is now able to play strategic role in global Islamic finance.

Malaysia's corporate bond-market development was mainly led by the demands from private bank sector for innovation in finance. This financial growth was also fueled by increased number of recognized investors, for instance funds of unit-trusts, pension funds and insurance companies. There was a noteworthy development in Malaysian corporate debt marketplace, raising from MYR 4.10 billion in private debt securities (PDSs) unsettled in 1989 to approximately MYR 188 billion in 2014, an increase of 45 times. Additionally, the corporate bond market of Malaysia represents 38% of the GDP of the country – considered to be the largest in the world (IMF (2014)). Additionally, the bond market of Malaysia equates to 9% of Asian's total bond market (excluding Japan) in 2015.

1.3. Bond Funds

Generally, bond funds are considered to be less volatile than equities as they have a diversified portfolio and receive a steady stream of interest payments. Their portfolio would normally consist of various types of fixed income unit-trust funds depending on:

i. Categories such as Conventional Bond and Islamic Bond,
ii. Issuers such as government and corporate, and
iii. Structures that include convertible bonds, stepped coupon bonds, callable bonds, zero coupon bonds and guarantee bonds.

Unit-trust funds that are established in Malaysia generally allow investors to sign up for automatic re-investment of the fund's income distribution. Whenever a unit holder wants to redeem their units, the unit-trust companies and fund's trustee will always facilitate the redemption through cancelation of units. Hence, investors can benefit from the flexibility to buy and sell according to their needs. There are a several reasons for investor to invest into bond funds, such as:

i. Capital protection, depending on the fund;
ii. Dividend income;
iii. Diversification through a big pool of fund; and
iv. Easy to liquidate.

In Malaysia, the minimum initial investment to invest into bond funds is RM1,000. EPF also allow members to use their retirement fund from designated Account 1 to invest into EPF approved funds. Hence, members are allowed to invest up to 20% of their excess of saving into the fund. The minimum amount to be withdrawn is RM1,000.

Bond fund investing is mainly in debt instruments that include private debt securities (PDS) or corporate bonds; Malaysian government Securities (MGS); treasury bills; BNM bills; bankers acceptances; negotiable certificates of deposit; units in other bond funds; commercial paper and money market deposits.

Generally, bond funds are licensed and approved by Securities Commission with certain investment restrictions, permitted investment assets and some other parameters of investment including asset and geographical allocation. A bond fund must invest minimum 70% of its net asset value ("NAV") in income instruments (fixed) including income securities, deposits and money market instruments. As per Securities Commission guideline, the local Fund only can invest into these securities with minimum credit rating of at least "BBB3" or "P3".

Islamic bonds, also called *Sukuk,* are legal financial instruments and deeds. Islam forbids companies to deal with businesses related to liquor, gambling, pork products and pornography. Therefore, Islamic funds are not allowed to invest into these securities whereas the majority of the revenue and profit are from these forbidden activities. Nevertheless, Islamic funds are allowed to invest into companies that have a small portfolio of revenue from these prohibited activities.

Unit-trusts are investment vehicles where money is collected from investors that have similar characteristics such as risk tolerance, strategy for investment and financial objectives (Choong, 2011). The collected money is later invested in a broader authorised investor's portfolio through the services of a professional organisation that is specialised

in managing investments on the unit-trust's behalf. Each unit holder is fixed a trustee to monitor his money management. This way, investors' interest and rights are kept safe. Another name for a unit-trusts is 'open end' fund due to the fact that unit holder has the facility to reclaim or trade-back shares by the facilitation of fund-management companies at the existing price of buying or at current market value. Therefore, a unit-trust fund is a reasonable opportunity for investors to attain sensible diversification reach.

Since the introduction of sector funds in 1951 in Malaysia, investors have alternative options in making investment decisions. In Malaysia's capital-market, unit-trust's play a key role. They are considered as the main players in the Malaysian market and considered to have the powers to influence small investors and attract them to capital market (Leong, 2012), as they offer an extensive base for investment for small scale investors. As a result, strong competition has appeared between fund management companies of unit-trusts for small scale investors. However, more innovation has been introduced in unit-trust product development to attract potential future investors. With the increased demands from Islamic investors, Islamic units' trust funds were introduced in middle of 1990's.

May 1971, saw the launch of Tabung Amanah Bakti, that was considered the forerunner for Islamic unit-trusts by Asia Unit-Trust Berhad fund manager. Over two decades period of unstable market conditions, the Islamic fund market still managed to grow by 102% starting from RM 834.0 million in 1996 to RM1.60 billion in 2000 (Smart Investors, May 2002). Up to 30th of Sept. 1998, thirteen Islamic unit-trusts were in operation. This number increased to 20 by July 2002 and 35 in March 2003 typically consisting of equity and several bond funds (The Edge, February 24th, 2003).

Islamic Bonds, better known as *Sukuk* is the term commonly used for Islamic debt instruments. Islamic Bonds are the financial instrument that is mostly compliant with Islamic Shariah and they are able to provide another financing source especially for larger corporates and sovereign entities and are an alternative to Conventional Bonds. Islamic Bonds are the result of an innovation in debt security that is the same as Conventional Bond in aspects of risk and cash flow.

In last decade, extraordinary growth for Islamic Bond was observed, especially prior to global finance crisis. Islamic Bonds are a compulsory component of the Islamic financial system. In the recent years, there was a noticeable increase of around 10% to 15% in the growth rate of Islamic portfolio's to US$ 170 billion by the end of 3rd quarter of 2011 (Global *Sukuk* Report, 2013). Overall it contributes 14.4% in global Islamic finance assets. In modern industries, the emergence of Islamic finance and banking industries especially in Southeast Asian and in Arab Gulf states reflect the fact of creating a semi-independent financial system. This feature also helps to establish the creation of Islamic capital markets within existing conventional capital markets. One of the indisputable fact is the existence of Conventional Bond and Islamic Bonds in the same market along with different rules and regulations that are mainly Shariah compliant. Aside from the fact that due to Shariah concepts, the structure of Islamic Bonds are completely different, Islamic Bonds are still attractive compared to Conventional Bond (Cakir & Raei, 2011). However, this fact does not weaken common controversies and myths that exist in the differences between them. Although Miller, Challoner, and Atta (2012) believed that Islamic Bonds with their returns imitate Conventional Bond, Cakir and Raei (2013) argued that there is a difference

between Islamic bonds and Conventional bonds, especially if diversification advantages are considered that help to minimise the portfolio risk.

One of the prime differences among Conventional Bonds and Islamic Bonds is the ownership of assets that comes from common structures of products of Islamic finance. From a larger extent, underlying assets are owners of Islamic Bonds holders in any type of Islamic Bond transaction, mainly depending on the amount of investment that actually decides the share they are valid for. Whereas, Conventional Bonds naturally disallow this type of ownership as securities are considered to be debt obliged. Bonds are basically debt obligations that are issued to holders of bonds to prove the debt existence. None of these, business ownership, common venture or project is granted to the bond holder. As a result, since Islamic Bond is a representation of share in project, joint venture or business, the Conventional Bond mainly represent share in total dents (Jamaldeen, 2012).

A recent objection to Islamic Bonds on whether Islamic Bonds really follow Shariah rules and regulations suggests that Islamic Bonds are actually realigned to match conventional rules for asset securitisation. This poses the serious question, are these innovative new financial instruments in the form of Islamic Bonds are really different from Conventional Bonds or not. Wilson (2012) argued that special efforts were made by the issuers to make the Islamic bonds, similar to Conventional Bonds, so that new investors can assess the risk of investments. Such Islamic Bonds are actually just another form of conventional securities and hence defame the innovative notion of new tools of Islamic Bonds that are Islamic compliant.

These objections are also supported by famous scholars of Shariah. In the opinion of Mohammad Taqi Usmani the president of AAOIFI Shariah council, Islamic Bonds are currently issued in the same way and similar structure as Conventional Bonds in terms of the following factor: right to a fixed return, lack of ownership and repayment of principal guarantee turn majority of Islamic Bond into non-Islamic. Usmani (2012) provide opinions against getting ratings of international bonds since rating of Islamic Bonds can be obtained through recent established agency of regional rating (like Rating Agency of Malaysia), and at the same time international bonds should be more than ready to approve and accept Islamic Bond.

Although Islamic Bonds are surrounded by controversy, we are still witnessing a strong surge in their issuance within Malaysia and countries of Gulf Co-operation council with strong proof in Japan, Europe and Korea for the support of Islamic Bonds in their countries. Islamic Bonds increased growth, elevate questions that ask, are Islamic Bonds able to play an alternative role to conventional financing or not?

This research will provide us the opportunity to compare in-depth Islamic and Conventional Bonds with perception of market in the scope of these two financing sources.

Raising capital through increased use of Islamic Bonds is proved to have a positive effect on Islamic capital markets and the industry of fund management overall. However its influence is not clear on shareholders' wealth, specifically during a period of instability in global financial market. It is the pioneer work in which Islamic Bond issue announcement with respect to wealth effects are compared with Conventional Bond issue

announcement taking into consideration 2 different samples (first sample: 21 Islamic Bond funds and 49 Conventional Bond funds and second sample: 18 Islamic Bond and 45 Conventional Bond funds are used respectively). As it is known that the global financial crisis in 2007-2008 influenced the whole world and changed the dynamics of financial sector globally, this paper would try to explore the major differences of Islamic bond wealth effects and Conventional Bond announcements during the two periods mentioned. Therefore, the research outcome and findings of this study would provide a comparative analysis of Conventional Bonds and Islamic Bonds based on the sensitivity of the market for the other instruments of financing.

The research outcome of this study will also try to solve some of folklore surrounding the differences of Conventional Bonds and Islamic Bonds. Still it is an ongoing topic of discussion, are Islamic Bonds different from Conventional Bond. Cakir and Raei (2011) claimed the difference of Islamic Bonds from Conventional Bonds by proving that Islamic Bonds obtain advantages of diversification due to low risk but other researchers like Miller et al. (2012) and Wilson (2013) have different opinion, that returns of Islamic Bonds are structured in similar manner to obtain Conventional Bonds features. In order to solve these conflicting arguments, we analyse stock market reaction to solve these unsolved and unanswered issues.

1.4. Problem Statement

Investment in Conventional Bond funds had been the sole choice for investors in Muslim countries for many decades. Conventional Bond funds have many silent features like unit-trust funds which attract investors such as regular income portfolio diversification, money management, convenience and liquidity. However, majority of practicing Muslim investors in Malaysia and around the globe e.g., in Gulf countries, were reluctant to invest in Conventional Bond funds due to involvement of "interest" on profit that is prohibited in Islam. In Malaysia, in May 1971, Tabung Amanah (BAKTI) launched what was considered one of the first Islamic unit-trusts with Asia Unit-trust Berhad as the fund manager. Despite decades of an unstable market, the Islamic fund market still managed to grow by 102% starting from small base of RM 834.0 million in 1996 to RM1.6 billion in 2000 (Smart Investors, May 2002). Up to 30th of Sept. 1998, 13 Islamic unit-trusts were in operation. This number increases to 20 in July 2002 and 35 in March 2003 typically consisting of various bond and equity funds (The Edge, 24th February, 2003). Also, there was a noticeable development in Malaysian's corporate debt-market, growing from MYR 4.10 billion in private debt securities (PDSs) unsettled in 1989 to approximately MYR 188.0 billion in 2014, an increase of 45 times. Additionally, the corporate bond market of Malaysia represents 38% of the GDP of country –considered the largest in the world at the time (International Monetary Fund, 2014). Additionally, the bond market in Malaysia stood at 9% of the total Asian bond market (excluding Japan) in 2015. Although there are many studies discussing the performance of Conventional Bond funds and Islamic Bond funds especially under global crisis scenarios, there are no qualitative and quantitative comparisons on Conventional Bond funds against Islamic Bond funds. In this work, we shall compare the performance of two fund types using diversification risk adjusted

returns measurement and non-risk-adjusted return measurement methods. Our study is distinctive and different from older studies in the manner that it mainly focuses on the differences of wealth effect on Conventional and Islamic Bonds during a time of normal and volatile financial periods.

1.5. Research questions

The research questions of the study are as follows:

1. Are there any performance differences between Conventional and Islamic Bond funds?
2. Are there any risks different between Islamic Bond funds and Conventional Bond funds?

1.6. Research Objectives

These study objectives are:

1. To identify which bond funds comparatively fluctuate in performance Islamic or Conventional Bond Funds.
2. To determine the risk factor involved in investment into Conventional and Islamic Bond Funds.

1.7 Conventional and Islamic Bond funds

1.7.1 Conventional Bond Funds

Using the guidelines by the Securities Commission for unit-trust funds issued in Oct. 1991, a unit-trust fund is only eligible to be capitalised by approved Malaysian assets, that include Malaysian Government Securities, unpublished and listed securities on companies in Malaysia, bankers' acceptances, bonds, Cash certificates of Government Investment (Banker's Journal Malaysia, 1995) and Negotiable Certificates of Deposits. However, in March 1994, the commission allowed trust funds to invest (10%) of portfolio's in stocks overseas. Therefore, Conventional unit-trust funds were allowed to be capitalise in any stated assets in Malaysia with no restrictions until funds reach determined size of approval.

1.7.2 Islamic Bond funds

The focus of Islamic unit-trusts investments is in a portfolio of Halal bonds and stocks that comply with Syariah principles. Such 'Halal' stocks do not include corporations involve in goods, services or activities of conventional-banking, gambling, alcoholic beverages, services of financial/insurance and food products that are non-halal and the illness that can be caused by companies due to their products, or cause death, disease or the one that become source to increase social illness such as increased tobacco consumption.

From Islamic point of view, all such types of above industries are not acceptable as they produce products forbidden by Allah in Islam and have damaging effects on mankind (Smart Investor, 2002). Islamic unit-trusts also disallow elements such as riba or usury interest that are also forbidden in Islam. In cases where unconscious profits are made on

investment in restricted sectors, the fund will settle the investments. The profit earned should be given to charities.

In 2000, Mohd Nasir revealed that 'musharakah' that is a Syariah principle, signifies trust in Islamic units whereas participatory financing involves a contract among user and capital contributor. Therefore, in Islamic unit-trusts, partners or fund providers are holders of unit. A proper contract among the offer, capital or funds, profit, unit holder, acceptance and the investment activities are allowed if practicing the Islamic unit-trusts are to be used. The 'Al-wadiah yad dhamanah' concept is used by Islamic unit-trust funds to guarantee safe custody. Before unavailability of funds, assets owners are considered as fund managers, investors are guardian holders, and invested money is from asset. Following the funds creation, custodian holder is the fund manager, and asset is the invested money. Following the formation of fund, the unit holders are the owners of assets, trustee is custodian and assets contain all fund assets. Apart from that, the concept of 'al-bai'bithamin ajil' is also practiced in Islamic unit-trusts in which there is a buying transaction and unit fund redemption. In such case, redemption price or purchase is the forward buying or selling price for the manager and the next point of valuation when investors purchase or unit holders want to redeem shares. Nevertheless, 'al-wakalah principle' states that at the time of sale or purchase, the price must be determined. Consequently, current Islamic unit-trust practice is not complying to the principle of 'al-wakalah'. Therefore, daily historical price is recommended allowing funds to better follow principles of Syariah (Shariff, 2002).

1.8. Significance of Study

The significance of the result for this study is as follows:

1. The study will enable investors to understand better and to select the kind of investment base on own risk appetite.
2. It will assist investors and fund manager in their portfolio rebalance during a downturn in the market and into more defensive portfolio.
3. It will create awareness on choices available to investors into the two types of bonds markets.

1.9. Scope and Limitations of the Study

This study has the following objectives:

1. To find out that which bond funds is comparatively high in performance, Islamic or Conventional Bond Funds.
2. To determine the risk factor involved in the investment of Conventional and Islamic Bond Funds.

Table 1.1
Sample Interval Performance assessment (Taib et al. 2007)

Sample	First Sample Period	Second Sample Period
1st Sample	Dec 2010 – Dec 2014	Jan 2015 – May 2016
2nd Sample	Dec 2010 – Dec 2014	Jan 2015 – May 2016

For risk free rate T-Bills Band for Malaysia is used (data of each month), adopted from databases of Data stream maintained by Thomson Financial Limitedx. At the same time, for the benchmark and for proxy calculation, the performance of the Corporate Bond Index is used. The source of data is Quant shop website that has been working with RAM (Rating

Agency Malaysia) for several years in mounting the computation for Singapore and Malaysia Bond Index.

1.10. Organization of the thesis

The research is organised into five chapters. Chapter one is an introduction of the background study and the brief explanation of unit-trusts in Malaysia. This chapter also briefly explains bond funds, problem statements, and research question(s), study significance, scope and finally the limitations of this study. Chapter two is a literature review. It provides theoretical theories and theories which have developed by scholars in order to explain return and risk in unit-trusts and chapter summary. Chapter three starts with introduction to the research methodology, followed by research design, data collection and sample selection, research method, hypotheses development and chapter summary. Chapter four provides an analysis of comparative performance between Conventional and Islamic Bond funds and results of the study. Finally, chapter five reports the summary of results, draws conclusions and provides recommendations for future research. This chapter sets about determining the problem, identifying the types of Unit-trusts, their historical development in Malaysia and their limitations. Additionally this chapter details the research that was identified, and the specified objectives, the quantitative methodology that was used with the scope and limitations being set in this Chapter.

CHAPTER 2

LITRATURE REVIEW

2.1. Introduction

This chapter aims to provide background of the research area we are focusing on in this thesis. The Chapter starts with a review of literature including: CAPM theory, risk and return and theory for diversification. Finally, some prior art is reviewed.

2.2. Theoretical Literature

2.2.1. Portfolio Theory

The theory of portfolio selection construction was initially introduced by Harry Markowitz who was the first person to use preceding material for its definition and used the risk and return as the measures in standard deviation of a portfolio. Harry Markowitz, Merton H. Miller and William F. Sharpe won the Nobel Prize In 1990 for their pioneer work in developing financial economics theory. Their great work was the breakthrough in this area and led to the development of Capital Asset Pricing Model (CAPM) and later the Pricing Model of Arbitrage (usually known as Arbitrage Pricing Theory).

The model from Markowitz assumes a risk free person building a varied portfolio that increases the personal contentment (later some economists referred it as utility) by increasing returns on portfolio with known risk levels. Hence, an optimal combination of return along with risk is known to investors through this process, investor's wish to make the most of their utility, and the grit of the most favorable portfolio incorporates the maximisation of utilities in the limits of available collection.

2.2.2. The Capital Asset Pricing Model

William F. Sharpe, Jan Mossin, and Jon Lintner led the growth of the Capital Asset Pricing Model (CAPM). Markowitz's theory produced CAPM that helped to generally expand the idea of portfolio (diversified) in the market and specifically the evaluation of securities for individuals. This concept is valid for two context types i.e., micro and macro. Macro context represents affiliation with risk to portfolio whereas micro represents association of risk with return on asset that is explicit.

The association between portfolio return and risk can be expressed through the Capital Market Line (CML). An equation of straight line can be used to represent a CML equation (Mayo: 2003):

$$Y = a + bX \tag{2.1}$$

Where, Y represents portfolio return (Rp); *a* is the *y*-intercept represents the rate that is risk-free (Rf), X represent premium risk; and *b* is the line slope, CML equation can thus be represented as:

$$R_P = R_f . \frac{R_m - R_f}{\sigma_m} \tag{2.2}$$

Equation 2.2 above can be taken as the portfolio return (Rp) is a risk free asset return sum (risk free rate = Rf) for instance Risk Premium and Treasury Bill depending on return extent on market exceeding the risk-free return (i.e. *Rm – Rf*) and portfolio dispersion (σ p) relation to market dispersion (σ m). Two considerations of portfolio dispersion and market will cancel out each other if both dispersions are equivalent; the profit from such a portfolio relies mainly on risk free rate and premium for securities investment. Thus, if

portfolio dispersion is larger than market dispersion then return can only be recovered if it is greater than return of market. Therefore, CML is the indication of the fact that in order to get larger return, investors also need to take larger risk.

It is already mentioned above that micro context is one CAPM component that represents the association of return of an entity asset and its associated risk. This level of relationship can be called a Security Market Line (SML). Though SML is like CML, there is significant difference to notice. In CML, the measurement of risk is done by calculating standard deviation whereas in SML the risk is represented by co-efficient beta. To fully understand the CAPM model, one needs to understand those related risks. Therefore, in next part, we review Risk, Return and Diversification.

2.2.3. Return, Risk and Diversification

i) Return

Return of Investor's portfolio for a given time-range is equivalent to variation in value of portfolio and any distributions portfolio received, represented as portion of initial value of portfolio. Investor portfolio return represented as Rp is given as:

$$R_p = \frac{V_1 - V_0 + D}{V_0} \tag{2.3}$$

Where,

V_1 = market value of portfolio by the interval ending.
V_0 = market value of portfolio during interval starting.
D = the distributions of cash during the interval to investor.

There is an assumption in the calculation that for portfolio of securities if any income is received and if they are not distributed among investors will be reinvested in the portfolio; if there are any distributions towards interval ending, or are kept waiting for period end; and inflows of capital throughout interval are stopped.

ii) Standard Deviation (Total Risk)

There is a risk on return that expected rate of asset may not be realized. This risk shows instability of future outcomes. More than uncertainty in future outcome, greater is the variability chance (or dispersion) between returns that are realized and expected.

Classification of complete risk portfolio is described as systematic and unsystematic risks. In the earlier risk type, diversification negligence is possible. Some of the examples include an exceptional risk such as unforeseen strikes, failure of products etc. On the other hand the later risk category, is called market risk, a kind of portfolio risk that is not possible to diversify away. Some of the examples for this category include unexpected measures for example market fall, economic calamity, increase of interest rates, price increase etc.

A Portfolio manager may be interested not only in the average value of probability distribution of expected value, but also spread around the expected value of random variables. Probability distribution dispersion can be measured through distribution variance represented by *Var(R)*. *Var(R)* can be obtained through:

$$Var(R) = \sum_{t=1}^{T} \frac{\left(R_t - R_{EV}\right)^2}{T-1} \tag{2.4}$$

The main difficulty of variance usage as measure of dispersion, is that random variable is in square terms. Therefore, to remove square term, the square root of variance is taken and that term is known as the standard deviation (σ R). Standard deviation is considered to be a more reasonable measure of dispersion degree as it is easy to understand.

Equation for standard deviation can be shown as:

$$\sigma_R = \sqrt{Var(R)} \tag{2.5}$$

iii) Beta

The unsystematic risks can be diversified away if an individual creates a well-diversified portfolio (see detail at diversification part). This will convert a systematic risk into relevant risk. The Measure of systematic risk can be done through beta coefficient; it represents the instability of an individual asset in relation to instability of market.

iv) Coefficient of Variation

Standard deviation represents the dispersion absolute value that has the chance to be changed by magnitude of original numbers. The Coefficient of Variation (CoV), a relative measure, is a better way to do a comparison for different values of a series. Standard deviation only tells which series among many has larger dispersion and hence there is a possibility that it may have a risk that is larger. The Coefficient of Variation (CoV) is obtained by the division of dispersion standard deviation to mean of return.

v) Diversification

In the diversification process, an investor develops a portfolio in a sense so that portfolio risk is minimized and returns on investment is not scarified. This is normally a major aim of investor in a unit-trust investment.

Markowitz developed the concept of portfolio. An major part of an individual's total risk (represented as returns standard deviation) is diversifiable. This implies that if investment and securities are combined, complementary variation of other securities can smooth or cancel major portion of the variation. Hence, stock in portfolio can eliminate total risk (both unsystematic and systematic risks).

Figure 2.1
Illustrates both types of risks.

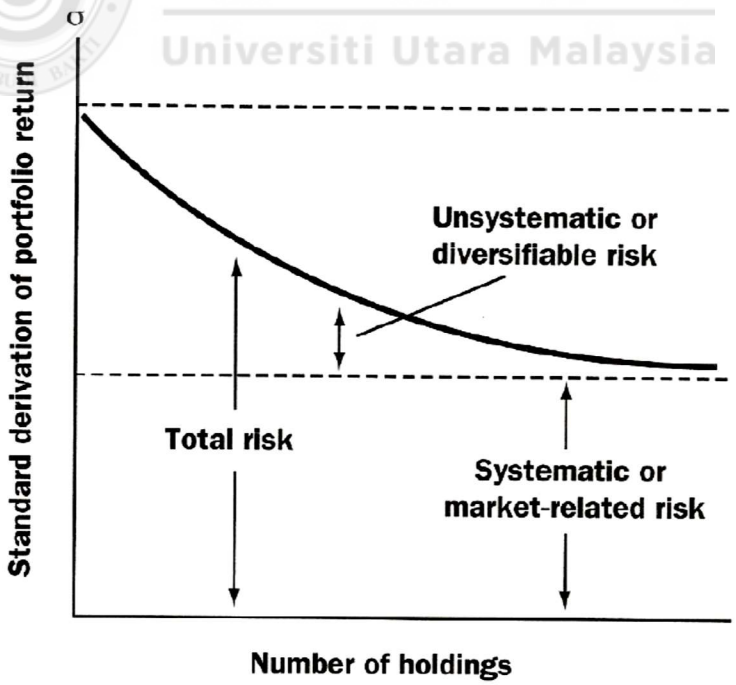

Figure 2.1: Systematic, Unsystematic & Total Risks

2.3. Literature Review on Portfolio Performance Measurement

Jack Treynor introduced the concept of risk-adjustment in 1966. Jack Treynor was the major contributor of the Capital Asset Pricing Model (CAPM) and he established his famous Treynor's Ratio. Mazuy and Treynor (1966) measured 57 open-ended mutual fund performances for ten years (1953 to 1962). They employed a quadratic regression method for line curvature data measurement characteristics. Their results reveal that a mutual funds investor is totally reliant on fluctuations in the general market.

Hence, rate of return improvement will be a result of ability of fund manager to recognize low-priced industries and companies, instead of ability of fund manager to make calculated guess for the turn of whole market entity.

Sharpe (1966), examined thirty-four mutual funds (US) for returns spanning from 1954 to1963. His results discovered that funds (mutual) are unable to surpass the market. 11 out of 34 funds showed larger value for the Sharpe index compared to portfolio's on the Dow Jones. There was a recommendation from Sharpe that a fund is not able to virtually decide the pattern of preference that is risk and return amount an investor directly favoured. However, a general degree of risk and expected return is determined by the funds management and therefor giving confidence for the investment by investor in such risk and expected return level.

Sharpe employed Spearman's Rank Correlation to conduct another test on the consistency of fund performance. Sharpe ranked funds in each period (annual), he assigned 1 in case Sharpe ratio is highest for funds, and 34 was assigned if fund has smallest ratio for Sharpe. The results revealed that fund performance correlation was 0.36.

In 2005, 115 US mutual funds were analysed by Jensen for intervals between 2005 and 2014. A measure of performance was introduced known as Jensen's Alpha. It evaluates a manager's portfolio projecting capability of security pries. It was shown in results that the average security prices could not be predicted. An additional result reveals that around 50% of funds showed a performance constant from one to next period.

2.4. Literature Review of Bond Fund Performance

Low-grade bond funds performance was examined by Cornell and Green (2003) during two periods between 2003-2004 and 2004-2015.

Ibbotson and Sinquefield indices include the Treasury bonds, high-grade corporate-bonds and Treasury bills. The Results reveal that the low-grade fund returns over the long run and high-grade returns are approximately equivalent.

In 2006, Blake et.al employed nonlinear and linear models using two sample types in order to remove bias sample of survivorship and the sample is bigger.10 from 46 funds (for first sample) eliminate / estimated during the research period of ten years spanning 2007 to the end of 2013. Bond funds are used in the second sample consists of those that were there in December 2007 that are 223 survival funds five years sample. Several indexes were

used consisting of: several government mortgages and bond indexes of investment-grade corporates from Lehman Brothers; thirty day treasury bills from Ibbotson & Associates and the Blume/Keim bond index for high-yield. Low performance of relevant indexes of bond funds post expenses was found in their studies. Further, based on past performance, future performance of unbiased sample cannot be predicted.

In 2007, Elton et al. found that security returns are mainly derived by factors including various indexes and unexpected fluctuations in economic variables. A relative pricing model was developed by author, (Arbitrage Pricing Theory (APT) Ross, based in 1976) to monitor bond funds performance. The Benchmark for the study was based on government bonds indexes, mortgages, and corporate bonds. The period of sampling spanned from February 2007 to December 2015. From their study, it was found that the most important variables that can clarify the time series of returns are the return indexes and economic variables that in addition enabled huge improvements in the clarification of expected returns.

In 2005, Kah and Ruud studied the perseverance of performance of mutual funds in fixed and equity types. Data for fixed income consisted mainly of domestic bond funds of active taxable / actively taxable and does not have bond funds that are junk, international bond funds, index funds, funds of preferred stock and money market starting from Oct. 2010 to Sept. 2014. Fixed income funds are supported by persistence, advantage of persistence is not able to surmount average deficit of fixed income funds that are generated through expenses and fees.

In 2007, Philpot et.al studied the relationship between specific fund attributes and bond funds, risk adjusted return. Data collected for straight bond funds from years 2007 to 2011 were published in Morningstar Mutual Funds. The Performance of the fund was evaluated over 5 years measure of Sharpe with its relation to 6 variables (independent) that is: first return (Sharpe's measure for mutual fund's for 5 years delayed one holding period), expense (fund's 5 year average total expense ratio), turnover (rate of fund's turnover of average portfolio for five year period), assets (fund's total net assets natural logarithm from start of five-year return period), load (if any load is charged by funds then (dummy) variable is used) and dist. fee (if another fee is charged by fund, then another dummy variable is coded for it). These six variables are used in model of multiple regression. Study results revealed that bond funds future performance cannot be predicted from bond funds past performance and normally managers of bond fund are not effective in rising risk adjusted return.

In 2002, Gallagher and Jarnecic studied active Australian bond funds for their investment performance and effect of investor fund flows on portfolio returns.

There are open-end active bond funds out of which 66 institutional are and 77 retail Australian that exist and are included in this study for a period of 10-years to 30 September 2008.

The Risk free rate alternative is a derived return for interval *t* from Australia's Reserve Bank for thirteen weeks Treasury note that is monthly rate adjusted. The study utilises Warburg Dillon Read Composite Bond (All Maturities) Index (WDRCBI) as an alternative to market return. Conditional performance evaluation and unconditional

models are used as evaluation of market timing and security selection. Overall, findings of this study follow international evidence and also from US, mentioning performance of bond funds are the same as market trend (efficient). Since index before expenses are the criteria, actively managed institutional funds follow, the paper mentions major deficits for Australian bond retail funds following fees.

In 2014, Artikis assessed thirty-nine mutual bond funds (domestic) performance, operating in the Greek financial market. Daily data taken was from period of 15/03/1999 – 31/12/1999. The mutual funds' performance evaluation was carried out based on factors such as: total risk, return, systematic risk and coefficient of variation employing CAPM using 2 independent variables: an Index of Bond and General Index of Stock Exchange of Athens. His study reveals that the 33 mutual funds' performance were disturbed and could be converted to level of satisfaction by movements of Bond Index, and it seems to estimate the portfolio of market nearer compared to ASE General Index.

In 2005, a Silva et. al studied bond funds for market persistence performance in Europe. The Sample consists of bond funds totaling 638, comprising of Italy (57), Spain (158), France (265), Germany (91), UK (44) and Portugal (23). The Bond funds selected were those that were invested in the European and domestic markets monthly based data starting from 2005 January. Performance evaluation of the Bond funds was carried out over a period from 2005 to 2011, excluding funds from Portugal, a short interval, 2011 to 2014 was utilised because of index benchmark availability. Performance evaluation used both conditional and unconditional measures. Consistency of European bond performance was found through empirical evidence. This evidence clearly favoured the

Spanish bond funds. Bond funds persistence in Germany & France bond funds. It was also revealed in the study that conditional alphas decrease the performance perseverance evidence, in particular for the model of multi-index, which shows that time varying betas are deriving some of persistence phenomenon.

In 2007, Taib and Isa studied the performance of Malaysia unit-trusts for 2000 to 2002. 111 approved unit-trusts comprised the Malaysian sample size spanning a period from 2002-2004. These unit-trusts included: Balance funds, Bond funds and Equity funds spanning a period from 2002 to 2004. This wide study was conducted to cover complete economic cycles employing 7 diverse performance measures: adjusted Sharpe Index, market adjusted return, Sharpe Index, Treynor Index, adjusted Jensen's alpha and raw return Jensen's alpha, . These funds performance evaluation showed that bond funds perform relatively better compared to equity and market unit-trusts. It's because of this reason that during crisis period, interest rates are kept high. The Study also revealed that performance is not consistent due to insignificant correlation (inter-temporal) among performances of current and past.

In 2009, Rzezniczak and Swinkels focused on the polish market and empirically evaluated the investment performance of mutual fund managers. This study utilised monthly mutual fund returns spanning a period from 2000-2007 to evaluate investigate 3 categories of mutual fund investment: bond, mutual funds and balanced (a small sample of only 38 mutual funds was used). Various models for performance evaluation were used in this study and results showed that performance was robust according to choose of model. The benchmark used for this study was the Polish government bond index. It was found in that

study, that all types of bond mutual funds perform better than deposits for 3 months, 4 of them showed the Sharpe ratio higher compared to index bonds and the majority of investments of bond mutual funds showed positive α.

Generally, all earlier research revealed that bond funds performed less than relevant indices, factors or even benchmarks that were the performance measure. However, some latest research shows different results for performance of bond funds according to Taib and Isa (2007) and Swinkels and Rzezniczak (2009). The major reason for this difference may lie in the fact that older studies required reasonable fees and expenses for bond fund evaluations. Another reason for the difference is because it utilises the benchmark of Stock Exchange Index in Taib and Isa-2007.

2.5. Literature Review of Unit-trust Performance in Malaysia

Literature on performance of Malaysia Unit-trusts are the most critical part reviewed in this chapter. As far as we know, there is not much research done on study of bond funds in Malaysia. Therefore, it is important to preview Malaysia's market for unit-trusts. The majority of Malaysia's unit-trust research shows poor performance overall compared to index of equity (KLCI).

Mohamed and Mohd Nasir (2019) performed a study on fifty-four-unit-trust funds. Out of these 54 types, two foreign companies managed nine fund types over the period of 5 years ranging from 2012 to December 2017. Further classification on sample was made based on funds type and classified into Foreign managed funds and Malaysian managed funds. The Major objective of the study was to investigate either there are benefits investors

getting from their investment on unit-trusts. Their findings revealed that there was highest return of growth funds per unit of risks measured by standard deviation. On the other hand, highest ranked were balanced funds measured in terms of risk on per unit return. It was also found that income funds could provide lower risk and return compared to balanced funds. However, it was also noticed that acceptable diversification level was not achieved by any of the fund types. Additionally, their studies also revealed that expected reasonable risk-adjusted return were not generated by unit-trusts irrespective of the fact that they were heavily relying on professional fund managers.

Performance of Islamic unit-trusts have been recently studied by Arbi (2018) analyzing ranking and performance of unit-trust funds for Malaysia for a period of six and half years ranging from January 2012 to June 2017. Nine Islamic unit-trust fund samples were used in the study with RHB Islamic Index as market portfolio. Author also investigated the fund's performance consistency, risk diversification degree, prediction of security prices by fund managers, and were global crisis had any affect's on trusts funds. Their research showed that all fund types selected had less risks compared to market portfolio and was well diversified. However, unfortunately, Islamic unit funds could not outperform market portfolio as Treynor Index, Adjusted Sharpe Index and Adjusted Jensen's Alpha, were all negatively higher compared to market portfolio. Their findings also revealed that the half Islamic trust funds performed better compared to market portfolio before crash of market only under Adjusted Sharpe Index. But overall, the trend showed that during the crisis period of the market, the majority of Islamic funds were greatly affected and were not able to outperform market portfolio in any sense.

Another recent study on Islamic unit-trust funds financial performance in Malaysia by Shariff (2018), whereby 14 Islamic trust funds were selected for evaluation for the period of three years from 2014 to 2017 and compared the fund's performance with KLCI market index. The study was divided into three periods: short-term period (12 months); medium term period (24 months) and long-term period (36 months). They also investigated Islamic unit-trust characteristics and nature in addition to evaluating risk and return portfolio of funds. Their research results revealed that all funds monthly returns were 'losers' as they could not compete with risk-free and market returns in both long term and short-term periods. Comparatively, the majority of funds risk adjusted returns showed better performance compared to market that was non-consistent with majority of prior studies carried out for Malaysia and worldwide.

In 2010, Annuar et al. employed Mazuy and Treynor model to evaluate the performance of timing and selectivity of thirty-one Malaysia's funds of unit-trusts taken from 2010 to 2015. This study shows overall negative performance of timing and positive performance of funds. The study shows a positive relationship for the performances between timing and selectivity. Results also showed that expected diversification level have not been achieved by funds and unit-trust funds, with risk-return characteristics, generally not fulfilling the stated objectives.

In 2000, Shamsher et al. carried out a study on performance evaluation of fourty one passively and actively managed funds in Malaysia spanning a period from 2004 through 2009. The metrics used for performance evaluation include the Jensen's index, Sharpe's index and Treynor's index. The study revealed that there is no significance difference in

a passively and actively managed funds performance. Furthermore, these fund returns are fewer compared to portfolio of market returns. Two funds diversification levels are 5 percent lower compared to diversification level Kuala Lumpur Composite Index - KLCI. The Selection of active fund managers' skill is unfairly compared to a passive fund manager. Market timing capabilities for both managers was found to be both, actively and passively managed poorly.

In 2007 Soo-Wah and Noor Azlan studied Malaysian Unit-trust prices and KLCI linkage using co-integration analysis to know long-term relationship. To find short run price linkages, they performed a Granger causality test. The study showed a divergence of unit test fund's performance significantly from KLCI. Results further found that trends of index funds even differ significantly from KLCI. Whereas, prices of unit-trust funds for short run are comparable to KLCI.

In 2007, Soo-Wah studies found the fund managers timing performance and selectivity is susceptible to market benchmarks which are Exchange Main Board All-Share (EMAS) and KLCI Index. Sample consists of forty unit-trusts of Malaysia that records monthly price for 5 years; 2008 to 2014. This study utilised Jensen's model to evaluate performance of fund. In order to separate the fund managers' investment performance into components of market-timing and selectivity, they employed the Henriksson and Merton's model.

Study reveal that overall performance of funds is negative either using EMAS Index or KLCI. Furthermore, selectivity and timing performance of managers in the market showed little variation across benchmark of alternative market.

In 2007, Abdullah et al. carried out a comparison of performances of Conventional Unit-trust Funds with Malaysian Islamic Unit-trusts. In their work, they employed several factors including timing and selectivity ability, adjusted Sharpe index & Sharpe index in order to monitor the return from conventional as well as Islamic funds. Furthermore, they divided their study period into three time zones i.e., before crisis, in time of crisis and after crisis period. Conventional funds are categorised into governmental and non-governmental funds. Their study shows that the performance of conventional funds were good in a period when market is bullish whereas performance of Islamic funds was good when market was bearish. This result proposes that Islamic funds can save portfolio of investment during a bearish market to.

2.6. Literature Review of Corporate Bond Market in Malaysia

The Malaysian bond market was developed during 1970s, when the government had the country's development agenda as a target and hence, they allowed the issuing of bonds to to provide the extensive funding requirements of country. During mid-1980s, the private sector gained a central position in the strategic-development of Malaysia's economy. The purpose of giving more importance to private sector was to achieve growth and finance in economy. At the same time, the corporate sector was depending on banks for finance. This dependence of the corporate sector on banks for finance finally influenced the government to develop the corporate bond market as a high priority requirement. Hence, by the end of

1986, the market for Private Debt Securities as almost eliminated from Malaysia. This development was contrary to the government's debt market & equity increase as both were able to reach a certain maturity level.

In 2000 to 2008, the Asian finance crisis witnessed heavy reliance on bank loans from businesses. This economic crisis taught the government a lesson and they went on to further enhance the corporate bond market, so that they could offer alternative finance sources to private sector. The Malaysian government was also proud to successfully promote the market for Islamic Bonds. the definition of an Islamic Bond is "financial securities resemble conventional debt securities in term of risk and cash flows but are free from prohibited elements as mentioned in Syariah 19 principles, for instance, gambling, interest and extreme level of uncertainty. But also at the same time, it also incorporates Islamic principles including individual's rights and duties, risk sharing, sanctity of contracts and property rights". The Development of Malaysia's capital market is highly dependent on Islamic Bonds and contributes significantly to the Islamic financial system of the country. It was reported that RM 167.8 billion Islamic bonds were outstanding until 2nd quarter of 2009. This number increased to almost double from the outstanding Islamic bond value during 2006, with the percentile of Islamic bonds for all outstanding bonds not decreasing as of 2008 in anticipation of 2009.

Development of the Malaysian bond market was founded mainly by the structure of an extensive framework of regulations and strapping communications, together with future apsirations, steadiness in politics and firm microeconomics policies.

Key strategies of the government for attracting investors included several incentives to invest in bonds. Investors interested in incentives such as: interest income exemption from debt securities dominated by the Ringgit and Islamic bonds; waiver on duty stamp for MGS transfer, Islamic bond and PDS; and tax on capital gains waiver. For foreign currency-denominated Islamic bonds, a special incentive was given by government in the 2009 budget in which exemption on interest income from Islamic bond was given.

From the issuer's point of view, it is cheaper to issue Islamic bonds compared to Conventional Bond issuance. Until assessment of 2010, tax was deductible for the issuance of Islamic bonds whereas SPV expenses to issue Islamic bond enjoyed extraordinary benefit on tax-exemption.

2.7 Literature review of Islamic bands vs. Conventional Bonds

It was documented in the literature of the Islamic capital market that Islamic bonds are the major source of obtaining resource mobilization and acting as a pillar in Islamic financial industry development (Jobst et al., 2012 and Wilson, 2013). Unfortunately, there are limited studies that focused empirically on certain characteristics or reactions of stock market for their issuance. Jobst et al., 2012 summarised some of the important Islamic bond market issues in their paper. They argue that, regardless of financial crisis globally, still Islamic regions (countries) and financial institutions (that are conventional in nature) have a high demand for securities that are compliant with Shariah for example Islamic bond. Islamic bonds were also under criticism for being innovative financial instruments due to the fact that they are structured in same manner of asset securitisation that is also

done in conventional finance and therefore it make the uniqueness of Islamic bond innovation doubtful. This opinion is also extended by Wilson (2013) who argues that only those Islamic bonds that are issued that are similar to Conventional Bond and hence try to minimise the risk of investors' on Islamic bond. Therefore, in other words, Islamic bonds are just replicating the Conventional Bond and proved in a way that Islamic financing industry is lacking in introducing innovations in their products and pricing risk characteristics.

Another view from the above arguments Cakir and Raei (2012) proposed that Islamic bonds differs from Conventional Bonds in terms of minimizing risks on benefits. The authors used Eurobonds and sovereign Islamic bonds as samples from the same issuer to compare and calculate the value-at-risk (VaR) for a type of portfolio containing the instruments with the additional type of portfolio that contains Eurobond only. Their results for VaR showed that there is low VaR value for the portfolio having Islamic bonds along with securities in fixed income, claiming that Islamic bond does have potential of offering advantages for investors.

For testing the differences of Conventional Bonds and Islamic bonds for wealth effects we mainly depend on old-style financial modelling. The earliest theoretical models studying wealth effects on financial securities is the asymmetric information model proposed by Mayers and Majluf (1984) and they proved that managers are well aware and contain more information compared to investors as they contain in and out of market. One of the attractive features of their model is that it nicely explains the reasons for stock price

falls during the time firms are announcing their stock issuance to finance the investments they have, and also explains why there is no fall in stock prices even if debts are issued. Kim (2001) also provided a signaling theory that is a theoretical model explaining this phenomenon by employing a gesturing symmetry to clarify market reactions to announce common stocks, with the gesturing symmetry clarifying reactions of the market for announcing straight, convertible bonds. Their study proved that the convertible bond conversion ratio provides positive signal for earnings of the firm in future.

There are several studies done in past investigating the effects of wealth for announcements of bonds and the obtained results from these studies are not very conclusive and hence are vacillating. Howton, Howton, and Perfect (2011) tried to study Jensen's argument of free -cash flow related to issuance of straight bonds. Their study reveals that there was a negative reaction of the market for issuances of straight industrial company bonds and reactions of companies on announcement day is related inversely to the free cash flow before issuance of debt and the reaction of companies on announcement day is also inversely related to firm investment opportunities. Harvey, Lins, and Roper (2013) showed that high managerial agency costs because the increase in shareholders firms value. While Arshanapalli, Fabozzi, Switzer, and Gosselin (2013) showed that firms convertible bonds announcement can lead to negative return that are abnormal. However, these findings contradict findings of Kang and Stulz (2011) and De Roon and Veld (2013) where they proved that convertible bond announcements could lead to negative abnormal results.

Ammann, Fehr, and Seiz (2012) found noticeable negative returns that were abnormal on their study on the announcement and effects of issuance of exchange and convertible bonds for Swiss and German markets during the announcement day and there was no significant returns noticed on the day of issuance. In another study Shao, Sheng, Hsing, and Chia (2013) studied the investment opportunity role and free cash flows to explain the origin of effects of stock valuation in offering secure debts. Their results revealed a very good and positive relationship among opportunities of a firm investment and its corresponding stock prices to the announcements of debt issues that are secured.

The only single comparative study available in literature for Conventional Bonds and Islamic bonds is from Ashhari, Chun, and Nassir (2011), the authors found that Islamic bond issuance announcements are influenced by wealth but the same is not true for announcements of Conventional Bond. They further showed that for both Conventional Bonds and Islamic bonds a significant factor of stock return is established for size of the bonds of these two types, however Islamic bonds showed negative sign that is opposite to Conventional Bond. Due to nature of study carried out only for the Malaysian market sample, it is not possible to generalise the results for global Islamic finance market. In this work, we enhance the study from Ashari et al. (2011) in following two ways: First contribution is to increase sample size and incorporate information from countries like Singapore, Pakistan, Indonesia, UAE and Qatar market. Second contribution is that we further enhance regression model by adding free cash flow as significant factor of stock return for Conventional Bond and Islamic bond.

In another study from Ahmad and Radzi (2014), the authors studied the role of existing economy conditions in the country due to the issuance of Conventional Bonds and Islamic bonds. It was revealed that GDP has a major influence on Malaysian Ringgit exchange rate with US dollar and effects market liquidity because of the Islamic bond issuance in Malaysian capital market, whereas issuance of Conventional Bond is only affected by exchange rate. Unfortunately, authors were not able to empirically prove that financial crisis has any significant role on issuance of both of these types of debt instruments. Our study hence will be helpful in capturing the role of the financial crisis while making decisions for Conventional Bonds or Islamic bonds. Also, we divided the sampling period into three different groups called pre crisis, during the crisis and after the crisis.

However, our study is distinctive and different from older studies in the manner that it mainly focus on the differences of wealth effect on Conventional Bonds and Islamic Bonds during the time of normal and volatile financial periods. There is ample literature available on pliability of Islamic finance during the period of global financial crisis in 2007. The World Bank (2012) however, reported that in recent years Islamic financing has shown a significant and exponential growth and they outperformed Conventional Bond financial instruments mainly after the period of financial crisis starting from 2008.

2.8 Summary

In this chapter, we provided a comprehensive literature review on the Capital Asset Pricing model (CAPM); risk and return and diversification theory and the portfolio theory. Then we reviewed portfolio performance measures. Different measures discussed include: Treynor's Ratio, Sharpe index value, Spearman Rank Correlation, Jensans Alpha. We went on to review bond fund performance. Research done in past for bond fund performance evaluation is discussed starting from 1993 to 2014. Then we provided a review on Unit-trust performance in Malaysia. The literature review on Unit-trust Performance in Malaysia is the most important review in this chapter. As far as we know, there is not much research done on the study of bond funds in Malaysia. Therefore, it is important to provide general preview of the unit-trust market in Malaysia. The majority of research for unit-trusts in Malaysia shows an overall negative performance relative to equity index (KLCI). Finally, we provided a review of the corporate bond market in Malaysia. During mid-1980s, the private sector gained a central role in the strategic development of economy of Malaysia. The purpose of giving more importance to private sector was to achieve growth and finance in economy.

CHAPTER 3

METHODOLOGY

3.1 Introduction

The methodology used by this study is explained in this chapter. . In this section we discuss sampling and data collection, Section 3.3 is continuous with the presentation of the data analysis approach.

3.2 Data Collection and Sample Selection

This study goes through every bond fund (conventional) in Malaysia including Islamic and corporate bond funds. The Edge Newspaper of Malaysia is used to obtain list of bond funds as of date May 3, 2016. The Malaysian market has total 76 bond funds outstanding, 55 of which are conventional bond funds and 21 Islamic Bond funds. . A complete list of bond funds is provided in Appendix A.

Capital Gain Distribution (Dividend) and Net Asset Value (NAV) were taken from Bloomberg Professional ® Service.

Monthly data Malaysian T-Bills Band 4 we take from Data stream. Treasury bill rate reported is annually holding period yield for three months Treasury bill; the rate converted to equivalent monthly base, which consists of the bond funds monthly returns and the return on market. This work uses the estimated monthly equivalents of annual yields as a geometric mean, given by:

$$\left(1+ Annualized \quad Yield \right)^{\frac{1}{F}} - 1 \tag{3.1}$$

Index for Corporate Bond generally uses performance of overall bond fund proxy. We collect data from the website of Quant shops that have been working with RAM (Rating Agency Malaysia) from 2006 however since 2008 Quant shop has exclusively generated the index.

Researcher use two samples in this study:

Sample 1: At least 1 year NAV data is available for all funds up to May 2016 or all the funds launched from 2008 to 2014.

Sample 2: Complete NAV data for all funds available from 2013 to 2016 (Table 3.1) Bond funds are tabulated as per the number of funds included in each sample and their year of launching.

Table 3.1
Malaysian Bonds Funds (2007-2016) and Sample Selection

No	Type of bond fund	1st Sample	2nd Sample	Year of Number Bond funds Accumulated (Acc) and launched (Lcd)												Total
				2016		2015		2014		2013		2012		2011-2007		
				Lcd	Acc	Lcd	Acc	Lcd	Acc	Lcd	Acc	Lcd	Acc	Lcd	Acc	
1	Conventional *	47	46	5	54	3	50	5	48	7	44	7	36	28	30	55
2	Islamic **	21	17	1	20	2	20	3	19	5	17	4	13	10	12	21
Total (* + **)		68	63	4	76	3	72	6	69	12	63	11	51	40	40	76

Note,

Listed in above table - Activated bond funds in above table up to May 2016

The Edge Malaysia News Paper is Source for List of Islamic Bond Funds, May 04, 2016

1st sample exploits bond funds number that are included in research work. Monthly NAV observation number for all funds differs and are contingent on date of launch. Therefore, the total number of observations of Conventional Bond funds is not same as that of Islamic Bond funds in each year. In demand to besieged tilt because of market influence or condition, the comparison of performance needs to be done on adjusted returns of market, also on risk adjusted returns, therefore in this sample the basis of comparison for funds and performance is measured by according to the Jensen Index. Table 3.1 show sample bond fund numbers are as follows 21 Islamic Bond funds and 49 Conventional Bond funds, 1,078 months Islamic Bond funds NAV data for and 2,707 Conventional Bond funds NAV data. These are covered for years in Table 3.2.

Table 3.2
Number of observations Tabulation in 1st sample covered by years

Funds type	Year by accumulated observation numbers					
	2011	2012	2013	2014	2015	2016
Islamic	105	266	452	679	919	1079
Conventional	302	707	1189	1749	2325	2709

The second sample compares funds launching during various years: namely Sharpe, Treynor Index, Adjusted Sharpe, risk adjusted return, Jensen and Adjusted Jensen. Alternatively, we can say that the sample lets us allow for the differences in the complete market performance. In this sample, 18 and 45 Islamic and Conventional Bond funds are used respectively and the numbers of observations for Islamic Bonds monthly NVA data is 576 and for Conventional Bonds monthly NVA data is 1,440. This study provides for a performance evaluation period and is grouped in 2 periods (1) first sample period and (2) second sample period. A period analysis report by Economic Research National Bureau

is used that mentions U.S economy was published in December 2015. In Table 3.3, fund numbers and observations are covered for all periods.

Table 3.3
First sample and second sample period sample tabulations

	First sample Period				Second sample Period			
	NF	NO	NF	NO	NF	NO	NF	NO
Islamic	21	679	21	401	19	217	19	361
Conventional	49	1749	49	9611	46	541	46	901

Note,
NF = Number of funds
NO = Number of Observations

3.3 Data Analysis

Descriptive analysis and t-statistical analysis are used as a main analysis in this study. Statistical analysis like frequency is descriptive analysis, standard deviation or mean; reveals information from data set that is descriptive, whereas t-statistical is a type of statistical test used to test a variable mean difference among two groups (Cavana et.al, 2001).

The portfolio manager's performance has two requirements:

1) Deriving returns that exhibit above-average capability for a class of risk given; and
2) Complete portfolio diversification to eradicate risks that are unsystematic, compared to benchmark set by portfolio.

This research services four major criteria to realise requirements mentioned above including: diversification risk, adjusted returns measurement and non-risk-adjusted return measurement.

3.3.1 Non Risk-Adjusted Return Measurement

The origin of appraising performance of a manager is in return measurement. In any evaluation period for a portfolio, the dollar return is realized (that is a week, month or a year) is equivalent to addition of (1) the difference between portfolio market value at end and beginning of evaluation period, and (2) from the any distributions the portfolio made. Any portfolio distributions of income or capital to recipient or client should be mentioned. Mathematically, it can be represented as:

$$R_{it} = \frac{NAV_t - NAV_{t-1} + D_t}{NAV_{t-1}} \quad (3.2)$$

Where,
R*it* = Return of Fund Rate i at time t
NAVt = Fund Asset net Value i at time t
NAVt –1 = Fund Asset net Value i at time t-1
Dt = Cash disbursement or Dividend Fund made i at time t

3.3.2 Risk-Adjusted Return Measurement of Performance

In this study we use five risk adjusted return measures to compare and measure bond performance of funds. Measures taken are following: Jensen Index, Sharpe Index, Adjusted Jensen Index, Treynor Index, and Adjusted Sharpe Index. These are based on a monthly NAV, these directories are obtained on the monthly base.

3.3.2.1 Treynor Index

Risk-adjusted returns, a modern concept introduced by Jack Treynor has a major contribution in maturity of the Capital Asset Pricing Model (CAPM), and introduced the concept measure of Treynor's Index in 1965.

Treynor's Index is thought of as return per unit of risk on portfolio's premium risk. And an investor who is risk adverse would like to maximize Treynor's measure of value. Return unit investments produced are greater than risk units as indicated by a result greater than 1.00. An important consideration here is the dependency of beta (Treynor Index's reliance) on systematic risk meaning diversification could take care of non-systematic risk. Due to this reason, evaluation of non-diversified portfolios are limited by index.

Treynor's Index equation can be represented as:

$$T = \frac{\overline{R_i} - \overline{R_f}}{\beta_i} \tag{3.3}$$

Where,

T = Treynor's Index

$\overline{R_i}$ = portfolio return average rate *i* for a period specified

R_f = risk free investment average rate of return within the same period

β_i = Beta, fund's *i* characteristic line slope again in same period

Beta can be obtained through following formula:

$$\beta = \frac{\sum\left(\left(R_{it} - \overline{R_i}\right)\left(R_m - \overline{R_m}\right)\right)}{\sum\left(R_i - \overline{R_i}\right)^2} \tag{3.4}$$

Where,

R_{it} = funds return rates for *i* at time *t*

$\overline{R_i}$ = the fund average return rate *i* for a given time period

R_m = market index rate of return

$\overline{R_m}$ = market index average rate of return for give time period

R_m can be obtained through following formula:

$$R_m = \frac{I_t - I_{t-1} + D_t}{I_t - I_{t-1}} \tag{3.5}$$

Where,

R_m = Index return at time *t*

I_t = Index Value of Market at time *t*

I_{t-1} = Index Value of Market at time *t-1*

D_t = disbursement of cash or divident at time *t*

D_t is supposed to be 0 as RAM-Quantshop has included the calculation of bond index by all securities coupon payment.

3.3.2.2 Sharpe Index

William Sharpe from Stanford University a Nobel Prize winner introduced Sharpe Index in 1966. Similar to Treynor's, this index calculates returns on portfolio per unit of risk, but utilises a return standard deviation on investment.

The Index focused also on return risk, however, it calculated surplus return compared to risk-free rate rather than benchmark of fund. Sharpe equation of index can be represented as:

$$S = \frac{\overline{R_i} - \overline{R_f}}{\sigma_i} \tag{3.6}$$

Where,

S = Sharp Index

$\overline{R_i}$ = portfolio avg. return rate i in a given period

R_f = risk-free investment avg. return rate in same given period

σ_i = portfolio returns rate std. deviation i in given period

Std. deviation can be obtained from following formula:

$$\sigma_i = \sqrt{\frac{\sum \left(R_i - \overline{R_i}\right)^2}{\left(n-1\right)}} \tag{3.7}$$

Where,

R_{it} = fund return rate i at given time t

$\overline{R_i}$ = fund avg. return rate i for a given time period

n = observation numbers

3.3.2.3 Adjusted Sharpe Index

In 1978 Gehr & Miller discovered biased outcomes are calculated through Sharpe Index. Jobson and Korkie (1981 and 1984) fix the problem of biased outcome in Sharpe Index by adding another parameter in a model called return interval number (K). Sharpe Index corrected model is shown as:

$$AS = S \times \frac{K}{K + 0.75} \tag{3.8}$$

Where,

AS = measure of adjusted sharpe
S = measure of sharpe
K = return period number in given period of evaluation

3.3.2.4 Jensen Index

It is also known as Jensen Alpha, utilizing Capital Asset Pricing Model (CAPM) to decide whether market index is outperformed by the bond fund manager. An above-average performance can be determined through a positive value, while under performance result indicates a negative.

The Jensen Index equation is shown as:

$$\left(R_i - R_f\right) = \alpha_i + \beta_i\left(R_m - R_f\right) + \varepsilon_{it} \tag{3.9}$$

Where,

α_i = portfolio performance' Jensen's measure also called alpha
R_{it} = funds return rates for *i* at time *t*
R_m = market index return rate
R_f = risk-free investments return rate for same given time period
β_i = fund's i characteristic line slope in the same interval also called Beta.
ε_{it} = randomized error term.

3.3.2.5 Adjusted Jensen Index

To determine whether the manager of mutual fund portfolio generates returns that are unusual, the results are presented by alpha positive value, the regular Jensen Alpha can be used (explained at 3.3.3.4).

For comparing different funds, however, the Jensen Alpha of each fund should be divided by fund beta value that adjust fund α between funds. The formula for Alpha of Adjusted Jensen can be obtained as:

$$AJI = \frac{\alpha_i}{\beta_i} \tag{3.10}$$

Where,

AJI = measure of Index for Adjusted Jensen

α_i = portfolio performance' Jensen's measure also called Alpha

β_i = fund's i characteristic line slope also called Beta

3.3.3 Measurement of Risk

This study utilises 3 risk measures, including beta, coefficient of variation and standard deviation.

Standard deviation

$$\sigma = \sqrt{\frac{\sum\left(R_i - \overline{R_i}\right)^2}{(n-1)}} \tag{3.11}$$

Where,

σ_i = portfolio return rate standard deviation *i* for a given time period

R_{it} = fund return rates i at given time t

$\overline{R_i}$ = fund average return rate *i* for a given period

n = observations number

Beta (Systematic Risk)

This corresponds to characteristic line slope that explains the relation between rate of portfolio return versus time (Ri) and portfolio appropriate market return rate (Rm).

Relative volatility or portfolio's return is measured through Beta corresponding to aggregate market returns.

Systematic risk is measured through a slope denoted with β. The β formula can be represented as follows:

$$\beta_i = \frac{\sum\left(\left(R_i - \overline{R_i}\right)\left(R_m - \overline{R_m}\right)\right)}{\sum\left(R_i - \overline{R_i}\right)^2} \tag{3.12}$$

Where,

β_i = fund's i characteristic line slope also called Beta

R_i = fund return rates i at given time t

$\overline{R_i}$ = fund avg. return rate *i* for a given period

R_m = market index return rate

$\overline{R_m}$ = market index avg. return rate for a given time

Coefficient of Variation (CoV)

CoV can be obtained from following equation:

$$CoV = \frac{\sigma_i}{\sum \overline{R_i}} \tag{3.13}$$

Where,

σ_i = portfolio return rate standard deviation *i* for a given time period

R_i = fund average return rate *i* for a given period

3.3.4 Diversification Measurement (R2)

The degree of diversification measured through the R2 statistic as mentioned in Taib et.al. (2007). It represents the regression line error distribution among Bond Index and Fund returns.

3.4 Hypotheses

Research hypothesis consists of predictions that are precisely testable and are made for dependent and independent variables inside this study. Literature discussed in previous section can be rationalised through eight hypotheses to be tested in this work. The 8 hypothesis to be examined are:

- return adjusted for non-risk
- non-risk adjusted returns consistency
- Risk adjusted return
- Consistency of Bond Fund Risk Adjusted Returns
- Bond Funds Risk
- Consistency of Bond Funds Risk
- Bond Funds Diversification Level
- Consistency of Bond Funds Diversification Level

3.4.1 Non-Risk Adjusted Return

H_0: Similar Riskless attuned common monthly returns of bond funds of Islamic (RI) and Conventional (RC).

$$H_0 : R_C = R_I$$
$$H_A : R_C \neq R_I$$

3.4.2 Consistency of Non Risk Adjusted Returns

H_0: Similar Riskless attuned returns of Fund (CB) during first and second sample period.

$$H_0 : R_{C1st} = R_{C2nd}$$
$$H_A : R_{IBF} \neq R_M$$

H_0: Similar Riskless attuned returns of Fund of IBs during first and second sample periods.

$$H_0 : R_{C1st} = R_{C2nd}$$
$$H_A : R_{IBF} \neq R_M$$

3.4.3 Risk Adjusted Return

H_0, no difference between Risk Adjusted Returns of Conventional (RAR_C) and Islamic (RAR_I) Bond Funds.

$$H_0 : RAR_C = RAR_I$$
$$H_A : RAR_C \neq RAR_I$$

3.4.4 Bond Fund Risk Adjusted Returns Consistency

H_0, similar Adjusted Returns risk of Bond Fund of Conventional during first and second sample periods.

$$H_0 : RAR_{1st} = RAR_{2nd}$$
$$H_A : RAR_{1st} \neq RAR_{2nd}$$

H_0, similar Returns of Risk Adjusted of bond fund for IB during first and second sample periods.

$$H_0 : RAR_{1st} = RAR_{2nd}$$
$$H_A : RAR_{1st} \neq RAR_{2nd}$$

3.4.5 Bond Funds Risks

H_0, similar Conventional risk ($Risk_C$) and Islamic ($Risk_I$) fund of bond.

$$H_0 : Risk_C = Risk_I$$
$$H_A : Risk_C \neq Risk_I$$

3.4.6 Bond Funds Risk Consistency

H_0, similar CB Fund risk during first ($Risk_{1st}$) and second ($Risk_{2nd}$) sample periods

$$H_0 : Risk_{1st} = Risk_{2nd}$$
$$H_A : Risk_{1st} \neq Risk_{2nd}$$

H_0, similar IB Funds risk during first ($Risk_{1st}$) and second ($Risk_{2nd}$) sample periods

$$H_0 : Risk_{1st} = Risk_{2nd}$$
$$H_A : Risk_{1st} \neq Risk_{2nd}$$

3.4.7 Bond Funds Diversification Level

H_0, there is no difference between Diversification Level of Conventional (R^2_C) and Islamic (R^2_I) Bond Fund.

$$H_0 \quad : R^2C = R^2I$$
$$H_A \quad : R^2C \neq R^2I$$

3.4.8 Bond Funds Diversification Level Consistency

H_0, similar CB funds Diversification Level during first (R^2_{1st}) and second (R^2_{2nd}) sample periods

$$H_0 \quad : R^2_{1st} = R^2_{2nd}$$
$$H_A \quad : R^2_{1st} \neq R^2_{2nd}$$

H_0, similar IB funds Diversification Level during first (R^2_{1st}) and second (R^2_{2nd}) sample periods

$$H_0 \quad : R^2_{1st} = R^2_{2nd}$$
$$H_A \quad : R^2_{1st} \neq R^2_{2nd}$$

3.5 Summary

This chapter also briefly explains the research methodology which covers the introduction in Section 3.1. Section 3.2, explains sample selection and data collection. In section 3.3 data analysis for four key measurements are provided that are: risk adjusted returns measurement, non-risk adjusted return measurement, diversification selection risk and measurement; Section 3.4 explains eight hypotheses to be tested (return of Non risk adjusted, Consistency of return of non-risk adjusted, Risk adjusted return, Consistency of Risk Adjusted Returns of Bond Fund, Bond Funds Risks, Consistency of Bond Funds Risk, Bond Funds Diversification Level and Consistency of Bond Funds Diversification Level. This chapter ends with Chapter summary in Section 3.5.

CHAPTER 4

RESULTS AND DISCUSIONS

4.1 Introduction

Here we present research analysis and findings. In this study the data analysis is provided by the performance indicator table. Two methods are used by method of analysis, the first method is the analysis that is descriptive and the second method is hypothesis testing using t-statistic. Study sample period spans Dec. 2010 to May 2016.

Table 4.1
Indicator of Measurement Performance

No	Measurement	Indication
1	Std. Dev	Larger standard deviation means there will be more fluctuation in funds returns
2	Beta	The higher value of Beta fund indicate it is more volatile compared to benchmark
3	Coefficient of Variation	Higher value means larger dispersion taken relative to series arithmetic mean (Reily & Brown 2006)
4	Sharpe	Higher ratio of fund's Sharpe is indicative of better return of fund compared to investment risk it taken
5	Adjusted Sharp	Indicates the correctness of Sharpe ratio for its biasness occurred due to little sample size (Jobson and Karkie, 1981).
6	Treynor	A high value of Tyeynor indicates greater performance of risk-adjusted.
7	Jensen	This index measures ability of manager to lead returns of above average risk adjusted.
8	Adjusted Jensen	This measure that is used to adjust Jensen's Index for changes in systematic risks amongst funds (Heslem, 2003)
9	R-Square	Diversification degree for the funds relative to market diversification.

4.2 Indicator of Performance Measurement

The Bond fund performance in this sturdy are obtained through the following (i) return on non-adjusted, (ii) riskiness measurement, called beta and coefficient or variation (iii) Sharpe Index or risk adjusted returns, Treynor Index, Adjusted Sharpe Index, Adjusted Jensen Index and Jensen Index, and (iv) R-square diversification levels.

4.3 First Sample performance comparison (Nov 2010– May 2016)

All bond funds included in this analysis, have at least 12 months NAV data for complete period of sampling. Table 3.2 provides observations in tabular form by type of funds and year. The NAV data numbers for every fund depend on when they were propelled have variations. Since, the beginning in 2015 only twelve months data is available which few funds contain NAV data as their launch in 2015. To associate Islamic Bond funds performance with Conventional Bond funds the Jensen Index is used to measure performance during first sample period compared to performance in second sample period to control the distinction in market effect on fund. In this section the analysis is not strong by using only one measure of performance.

4.3.1 First sample Descriptive analysis

The descriptive analysis of the Jensen Index is present in Table 4.2 and Table 4.3, risk free rate and market return, for conventional and Islamic Bond funds is also present. It observed that Islamic Bond funds Jensen index is improved to 0.023 during the second sample period from the 0.0142 before the first sample period. For the Conventional Bonds case, Jensen index mean reduces from 0.0241 first sample to 0.0222 in second sample period. Both fund type's outclassed index of market as mean values are positive for all the sample periods.

Table 4.2
For the first sample descriptive Analysis of Jensen Index

Panel 1: Islamic Bond Funds					
Period	N^a	Min.	Max.	Mean	SD
Overall	20	-0.005	0.0388	0.0189	0.0137
1st sample	21	-0.006	0.0377	0.0141	0.014
2nd sample	21	-0.0086	0.0743	0.0235	0.021
Panel 2: Conventional Bond Funds					
Period	N^a	Min.	Max.	Mean	SD
Overall	48	-0.0049	0.0531	0.0239	0.0185
1st sample	48	-0.0048	0.061	0.024	0.0191
2nd sample	48	-0.0159	0.1099	0.0221	0.0248

Table 4.3
First Sample's Descriptive Analysis of Risk Free Rate, Market Return and Bond Fund Return

Panel 1 : Islamic Bond Funds						
Period	Index	N	Min.	Max.	Mean	SD
Overall	Ri	1,079	0.0022	0.0411	0.0218	0.0131
	Rm	1,079	0.0031	0.0053	0.0047	0.0007
	Rf	1,079	0.0024	0.0026	0.0024	0.0001
1st sample	Ri	679	0.002	0.04	0.0173	0.0132
	Rm	679	0.0019	0.0065	0.0053	0.0012
	Rf	679	0.0024	0.0028	0.0025	0.0002
2nd sample	Ri	400	-0.0063	0.0768	0.0262	0.0208
	Rm	400	0.0035	0.0035	0.0035	0
	Rf	400	0.0024	0.0024	0.0024	0
Panel 2 : Conventional Bond Funds						
Period	Index	N	Min.	Max.	Mean	SD
Overall	Ri	2,708	-0.0024	0.0555	0.0266	0.0182
	Rm	2,708	0.0031	0.0053	0.0049	0.0006
	Rf	2,708	0.0024	0.0026	0.0024	0.0001
1st sample	Ri	1,748	-0.0022	0.0635	0.0266	0.0189
	Rm	1,748	0.0019	0.0066	0.0055	0.001
	Rf	1,748	0.0024	0.0028	0.0025	0.0002
2nd sample	Ri	960	-0.0136	0.1123	0.0251	0.0247
	Rm	960	0.0035	0.0036	0.0035	0
	Rf	960	0.0023	0.0024	0.0023	0

4.3.2 First Sample Hypothesis testing

Table 4.4
The first sample t-test results on Jensen Index comparison for different type of fund

Period	Bond Fund Types	N^a	Mean	Standard Deviation	t-Static (p-value)
Overall	Is.	21	0.0189	0.0138	-1.083
	Conv.	49	0.0239	0.0186	(0.284)
1st sample period	Is.	21	0.0142	0.0141	-2.102**
	Conv.	49	0.0241	0.0192	(0.039)
2nd sample period	Is.	21	0.0236	0.0211	0.219
	Conv.	49	0.0222	0.0249	(0.829)

Note,
a : *n* here refer to funds numbers in sample
** denotes 5% level significant level

Table 4.4 examination revealed that in second sample period and for the complete period the enactment of conventional and Islamic Bond funds are not meaningfully dissimilar except in the first sample period, where Islamic Bond funds perform poorer than Conventional Bond funds.

In Table 4.5 the results revealed that in the second period & during first period, the difference between both fund types is not substantial.

Table 4.5
Jensen Index comparison for different economic period (first sample t-test results)

Type of Bond Fund	Period	N^a	Mean	Standard Deviation	t-Static (p-value)
Islamic	1st sample	20	0.0142	0.0134	-1.667
	2nd sample	20	0.0234	0.0205	-0.103
Conventional	1st sample	48	0.023	0.018	0.427
	2nd sample	48	0.0220	0.0247	-0.66

Note,
a : *n* here are funds numbers in sample

4.4 Complete Data Sample Performance Comparison using Second Sample (Dec 2013 – May 2016)

The full data sample comprises 46 traditional and 19 Islamic Bond funds having complete data for NAV from Dec. 2013 to May 2016. The assessments for the full sample of data are bundled into two sample periods. From December 2013 to December 2014 being the first sample period; while from January 2015 to May 2016 is the second sample period.

4.4.1 The second sample Descriptive analysis

4.4.1.1 Non-risk adjusted return Descriptive analysis

The second sample results provided in Table 4.6 are descriptive analysis of: market returns, non-risk adjusted returns and rate for risk free. Both bond fund types outstripped the risk free and market returns throughout time, the normal time and the calamity time indicated by the given table.

4.4.1.2 Returns of risk adjusted descriptive analysis

Islamic and Conventional Bond funds descriptive analysis of risk adjusted returns is presented in Table 4.7.

If we consider the first and second sample periods, the table reveals performance of Islamic Bond funds are superior in second sample period then in first sample period. On other hand, Treynor's Index minimum value and Adjusted Jensen Index in the second sample period is very low. A bond funds negative beta for the first sample period result huge downbeat value. A beta that is negative means the market is correlated inversely with bond fund. When the general market is down the bond funds value tend to amplify.

Table 4.6
Non-risk adjusted return descriptive analysis for 2nd sample

Overall	Period	Index	N	Min.	Max.	Mean	Std. Deviation
Islamic	Overall	R_i	577	0.0012	0.0701	0.0259	0.0198
		R_m	577	0.0039	0.0039	0.0039	0.0000
		R_f	577	0.0026	0.0026	0.0026	0.0000
	1st sample period	R_i	217	0.0018	0.0622	0.0241	0.0198
		R_m	217	0.0045	0.0045	0.0045	0.0000
		R_f	217	0.0029	0.0028	0.0029	0.0000
	2nd sample period	Ri	361	-0.0062	0.0769	0.0271	0.0218
		R_m	361	0.0036	0.0036	0.0036	0.0000
		R_f	361	0.0025	0.0025	0.0025	0.0000
Conventional	Overall	R_i	1,441	-0.0048	0.0896	0.0295	0.0223
		R_m	1,441	0.0039	0.0039	0.0039	0.0000
		R_f	1,441	0.0026	0.0026	0.0026	0.0000
	1st sample period	R_i	541	-0.0019	0.1032	0.0343	0.0267
		R_m	541	0.0045	0.0045	0.0045	0.0000
		Rf	541	0.0029	0.0029	0.0029	0.0000
	2nd sample period	R_i	901	-0.0137	0.1124	0.0269	0.0247
		R_m	901	0.0036	0.0036	0.0036	0.0000
		R_f	901	0.0025	0.0025	0.0025	0.0000

Table 4.7
Bond funds risk adjusted return descriptive analysis for 2nd sample

Panel 1: Islamic Bond Funds						
Period	Risk Adjusted Return	N^a	Min.	Max.	Mean	Standard Deviation
Overall	Treynor	18	-0.163	11.094	1.056	2.697
	Sharpe	18	-0.713	5.22	1.33	1.393
	ASI	18	-0.951	6.972	1.812	1.858
	Jensen	18	-0.003	0.067	0.022	0.01
	AJI	18	-0.164	11.093	1.054	2.697
1st sample period	Treynor	18	-43.534	1.830	-2.231	10.31
	Sharpe	18	-0.767	4.414	1.337	1.418
	ASI	18	-1.023	5.885	1.783	1.891
	Jensen	18	-0.003	0.05	0.020	0.01
	AJI	18	-43.536	1.828	-2.232	10.31
2nd sample period	Treynor	18	-1.517	6.351	0.392	1.543
	Sharpe	18	-0.754	6.013	1.517	1.606
	ASI	18	-1.006	8.017	2.023	2.141
	Jensen	18	-0.008	0.073	0.023	0.021
	AJI	18	-1.518	6.350	0.391	1.543
Panel 2: Conventional Bond Funds						
Period	Risk Adjusted Return	N^a	Min.	Max.	Mean	Standard Deviation
Overall	Treynor	45	-4.327	4.170	0.542	1.34
	Sharpe	45	-1.474	12.296	1.420	2.075
	ASI	45	-1.965	16.396	1.893	2.767
	Jensen	45	-0.006	0.086	0.026	0.022
	AJI	45	-4.32	4.168	0.541	1.34
1st sample period	Treynor	45	-39.940	9.177	-0.745	6.24
	Sharpe	45	-5.455	10.726	1.990	2.703
	ASI	45	-7.273	14.301	2.654	3.606
	Jensen	45	-0.004	0.1	0.031	0.025
	AJI	45	-39.941	9.175	-0.747	6.24
2nd sample period	Treynor	45	-5.000	11.493	0.353	2.075
	Sharpe	45	-2.065	15.07	1.527	2.567
	ASI	45	-2.754	20.106	2.036	3.423
	Jensen	45	-0.015	0.111	0.023	0.022
	AJI	45	-5.001	11.492	0.351	2.071

Note,
a : n refers to the number of funds in the sample

Table 4.7 show different results for Conventional Bond funds. Excluding Adjusted Sharpe and Sharpe all the guides, during second sample period show amplified value compared to first sample period. The increases in value can be the result of several measures of risk utilised in index of risk adjustment. Adjusted Sharpe and Sharpe use standard deviation

while, Jensen, Treynor and Adjusted Jensen use Beta. According to table Treynor's value and Adjusted Jensen value decreases in the first sample period. In the sample periods the reason for the negative results are the bond funds beta value that is negative.

4.4.1.3 Risks Descriptive Analysis

Risks are generally related to probability that expected return rate for an asset may not be understood. This probability provides for future outcome doubts. Greater expected variability between expected and understood returns, the greater the doubt. Table 4.8 provides descriptive analysis of the risk measures of conventional and Islamic Bond funds for overall period covering during both sample periods. It can be concluded from table that during second sample period, pretentious / pertaining the economy, there is minor increase in conventional and Islamic Bond funds risk measurements.

Table 4.8
Bond Fund Risk descriptive Analysis for 2nd sample

Panel 1: Islamic Bond Funds						
Period	Risk Measure	N^a	Min.	Max.	Mean	Standard deviation
Overall	Beta	18	-0.0128	1.6972	0.2485	0.4173
	Std. Dev.	18	0.0021	0.0416	0.0181	0.0099
	CoV	18	0.1747	6.1982	1.5653	1.8569
1st sample period	Beta	18	-0.3914	1.6933	0.2855	0.5212
	Std. Dev.	18	0.0014	0.0408	0.0146	0.0106
	CoV	18	0.2039	3.0199	1.0271	0.8201
2nd sample period	Beta	18	-0.0622	1.7755	0.3343	0.4698
	Std. Dev.	18	0.0024	0.0406	0.0185	0.0099
	CoV	18	-4.4157	9.2654	1.5374	3.1597
Panel 2: Conventional Bond Funds						
Period	Risk Measure	N^a	Min.	Max.	Mean	Standard deviation
Overall	Beta	45	-0.0467	4.0699	0.2233	0.6119
	Std. Dev.	45	0.0006	0.0847	0.0263	0.0215
	CoV	45	-13.4168	14.4115	0.64145	4.2909
1st sample period	Beta	45	-8.5408	0.7326	-0.20856	1.5069
	Std. Dev.	45	0.0002	0.0519	0.0174	0.0127
	CoV	45	-12.6994	54.4135	1.4355	8.4077
2nd sample period	Beta	45	-0.0916	4.8571	0.3465	0.7563
	Std. Dev.	45	0.0006	0.2039	0.0252	0.0349
	CoV	45	-39.8254	302.9787	6.7116	45.6488

4.4.2 Hypothesis testing of non-risk adjusted return

T-statistical analysis for Conventional and Islamic Bond funds non-risk adjusted return is observed in table 4.9. The difference among Conventional and Islamic Bond funds non risk adjusted returns shows results for all periods and that they are insignificant at a level of 5%.

Table 4.9
2nd sample comparison for type of funds non-risk adjusted returns t-test results

Period	N	Type	Mean	STD	t-Statistic (p-value)
Overall	577	Islamic	0.0259	0.0198	-0.592
	1,441	Conventional	0.0295	0.0224	(0.558)
1st sample period	217	Islamic	0.0241	0.0198	-1.497
	541	Conventional	0.0343	0.0262	(0.141)
2nd sample period	367	Islamic	0.0269	0.0218	0.028
	901	Conventional	0.0269	0.0247	(0.979)

In different economic periods Table 4.10 shows the results of t-test on conventional and Islamic bond funds non-risk adjusted return. The test shows insignificant difference before and during crises among the non-risks adjusted returns for these fund types.

Table 4.10
2nd sample t-test results comparing for different economic period funds on non-risk adjusted returns

Bond Funds	N	Period	Mean	STD	t-Statistic (p-value)
Islamic	217	1st sample period	0.0241	0.0198	-0.434 (0.669)
	361	2nd sample period	0.0269	0.0218	
Conventional	541	1st sample period	0.0343	0.0262	1.385 (0.171)
	901	2nd sample period	0.0269	0.0247	

Risk Adjusted Return Hypothesis testing

T-statistics analysis involving Treynor, Sharpe, Adjusted Sharpe, Jensen and Adjusted Jensen indices is summarised in table 4.11. The result shows that in entire period, during the two sample periods the value for all guides are not significantly different for Islamic and Conventional Bond funds.

Table 4.11
2nd sample t-test results comparing various fund types on risk adjusted returns

Period	Analysis	N^a	Type	Mean	STD	t-Statistic (p-value)
Overall	Treynor	19	Is.	1.0571	2.6981	1.0070
		44	Conv.	0.5431	1.3497	-0.3181
	Sharpe	19	Is.	1.3598	1.3941	-0.1152
		44	Conv.	1.4209	2.0764	-0.9091
	ASI	19	Is.	1.8131	1.8588	-0.1153
		44	Conv.	1.8945	2.7685	-0.9091
	Jensen	19	Is.	0.0231	0.0198	-0.5897
		44	Conv.	0.0267	0.0224	-0.5581
	AJI	19	Is.	1.0553	2.6981	1.0071
		44	Conv.	0.5419	1.3497	-0.3182
1st sample period	Treynor	19	Is.	-2.2319	10.3195	-0.7005
		44	Conv.	-0.7458	6.2494	-0.4861
	Sharpe	19	Is.	1.3379	1.4186	-0.9695
		44	Conv.	1.9911	2.7052	-0.3362
	ASI	19	Is.	1.7835	1.8915	-0.9693
		44	Conv.	2.6545	3.6072	-0.3362
	Jensen	19	Is.	0.0207	0.0203	-1.6313
		44	Conv.	0.0316	0.0257	-0.1082
	AJI	19	Is.	-2.2333	10.3198	-0.7002
		44	Conv.	-0.7476	6.2497	-0.4861
2nd sample period	Treynor	19	Is.	0.3935	1.5438	0.0741
		44	Conv.	0.3534	2.0756	-0.9412
	Sharpe	19	Is.	1.5184	1.6068	-0.0151
		44	Conv.	1.5278	2.5678	-0.9881
	ASI	19	Is.	2.0245	2.1421	-0.0152
		44	Conv.	2.0373	3.4237	-0.9884
	Jensen	19	Is.	0.0243	0.0219	0.0662
		44	Conv.	0.0237	0.0246	-0.9481
	AJI	19	Is.	0.3923	1.5437	0.0742
		44	Conv.	0.3523	2.0755	-0.9414

Table 4.12
Second sample t-test results on risk adjusted returns comparison for two period

Bond funds	Analysis	N^a	Period	Mean	STD	t-Statistic (p-value)
Islamic	Treynor	18	First	-2.2319	10.3198	-1.068
		18	Second	0.3935	1.5439	(0.294)
	Sharpe	18	First	1.3379	1.4189	-0.358
		18	Second	1.5184	1.6068	(0.724)
	ASI	18	First	1.7838	1.8918	-0.358
		18	Second	2.0245	2.1423	(0.724)
	Jensen	18	First	0.0208	0.0203	-0.499
		18	Second	0.0243	0.0219	(0.623)
	AJI	18	First	-2.2335	10.3198	-1.069
		18	Second	0.3923	1.5439	(0.294)
Conventional	Treynor	45	First	-0.7459	6.2499	-1.121
		45	Second	0.3536	2.0759	(0.267)
	Sharpe	45	First	1.9909	2.7055	0.834
		45	Second	1.5279	2.5679	(0.408)
	ASI	45	First	2.6547	3.6073	0.834
		45	Second	2.0373	3.4239	(0.408)
	Jensen	45	First	0.0318	0.0257	1.502
		45	Second	0.0239	0.0248	(0.138)
	AJI	45	First	-0.7476	6.2499	-1.121
		45	Second	0.3524	2.0759	(0.267)

Table 4.13 presents the results that show all t-statistics reading are insignificant at 5%. It also concludes that on the performance of all risk adjusted guides, during two sample periods Islamic Bond funds do not show any changes. In the case of Conventional Bond funds, we conclude same.

Bond fund risk hypothesis testing

Sample EVERY fund risk measures are used in instruction for comparing Conventional and Islamic Bond fund risk during dissimilar periods.

Table 4.13 shows insignificant difference among all conventional and Islamic Bond funds risks measures for various periods of economics'.

Table 4.13
2nd sample t-test risk comparison results for different fund types

Period	Analysis	N[a]	Type	Mean	STD	t-Statistic (p-value)
Overall	Beta	18	Islamic	0.2485	0.4173	0.161
		45	Conventional	0.2233	0.6119	(0.874)
	Std. Dev.	18	Islamic	0.0182	0.0099	-1.546
		45	Conventional	0.0263	0.0215	(0.129)
	CoV	18	Islamic	1.5654	1.8569	0.877
		45	Conventional	0.6415	4.2909	(0.384)
1st sample period	Beta	18	Islamic	0.2856	0.5212	1.354
		45	Conventional	-0.2086	1.5069	(0.189)
	Std. Dev.	18	Islamic	0.0146	0.0106	-0.832
		45	Conventional	0.0174	0.0127	(0.409)
	CoV	18	Islamic	1.0271	0.8201	-0.206
		45	Conventional	1.4355	8.4076	(0.839)
2nd sample period	Beta	18	Islamic	0.3344	0.4698	-0.064
		45	Conventional	0.3465	0.7563	(0.951)
	Std. Dev.	18	Islamic	0.0184	0.0099	-0.792
		45	Conventional	0.0251	0.0349	(0.433)
	CoV	18	Islamic	1.5374	3.1597	-0.479
		45	Conventional	6.7115	45.6488	(0.635)

Notes,
N[a] depends on funds numbers inside samples

Table 4.14 presents conventional and Islamic Bond fund risk comparison for various economic times. We can conclude that all risk measurements do not show any difference for Islamic Bond funds for both periods, but the Conventional Bonds systematic risk differs during the period, where during the second period the systematic risk is lesser and pessimistic than the one in the first period.

Table 4.14
Second sample t-test results on risk comparison for different economic period

Bond funds	Analysis	N_a	Period	Mean	STD	t-Statistic (p-value)
Islamic	Beta	18	1st sample	0.2855	0.5212	-0.296
		18	2nd sample	0.3344	0.4698	(0.771)
	Std. Dev.	18	1st sample	0.0146	0.0106	-1.147
		18	2nd sample	0.0185	0.0099	(0.261)
	CoV	18	1st sample	1.0271	0.8201	-0.664
		18	2nd sample	1.5374	3.1597	(0.513)
Conventional	Beta	45	1st sample	-0.2086	1.5069	-2.209*
		45	2nd sample	0.3465	0.7563	(0.031)
	Std. Dev	45	1st sample	0.0174	0.0127	-1.401
		45	2nd sample	0.0251	0.0349	(0.166)
	CoV	45	1st sample	1.4355	8.4077	-0.764
		45	2nd sample	6.7116	45.6488	(0.4)

Note,
N^a depends on funds numbers inside samples
*5% level significant level indication

Diversification level Hypothesis testing

Table 4.15 present conventional and Islamic Bond funds T-statistics analysis level of diversification.

Table 4.15
Second sample t-test results on diversification level (R^2) comparison for different type of fund

Period	N_a	Type	Mean	STD	t-Statistic (p-value)
Overall	18	Islamic	0.1715	0.1809	1.632
	45	Conventional	0.1068	0.1241	(0.109)
Before	18	Islamic	0.2985	0.2342	2.612
	45	Conventional	0.1579	0.1745	(0.012)*
During	18	Islamic	0.2649	0.2052	1.755
	45	Conventional	0.1719	0.1839	(0.085)**

Note,
N^a depends on funds numbers inside samples
* 5% level significant level indication
** 10% level significant level indication

Results reveal that for entire period, conventional and Islamic Bond funds have no diversification level difference. Nevertheless, for second sample period, the t-statistic shows 5% significant level and for first sample period, t-statistic shows 10% significant level. We concluded that in for both sample periods, Islamic Bond fund diversification level is not same as that of Conventional Bond funds, on average Islamic Bond funds show more diversification. Both fund type's diversification level never alter in the periods shown in table 4.16.

Table 4.16
Second sample t-test results on diversification level comparison for different economic period

Analysis	N	Period	Mean	STD	t-Statistic (p-value)
Islamic	18	1st sample	0.2985	0.2342	0.458
	18	2nd sample	0.26498	0.2052	(0.651)
Conventional	45	1st sample	0.15798	0.1745	-0.369
	45	2nd sample	0.1718	0.1839	(0.714)

4.5 Summary

This chapter presents the analysis and outcomes of this research. In this work the data analysis is provided by the performance indicator table. Two methods are used by method of analysis, the first method is descriptive analysis and 2nd method is t-statistic hypothesis testing. The study covers the entire sample period from December 2010 to May 2016. The performance of the bond funds in this study are measured by the following: (i) non adjusted return, (ii) riskiness measurement, namely beta and coefficient or variation (iii) risk adjusted returns, namely Sharpe Index, Adjusted Sharpe Index, Treynor Index, Jensen Index and Adjusted Jensen Index, and (iv) the level of diversification as measured by R-square. Then we provide the comparison of performance based on first sample. The analysis presents that Jensen index for Islamic Bond funds improved to 0.023 during the second sample period from the 0.0142 for first sample period. In the case of Conventional Bonds, the mean for Jensen index decreases from 0.0241 for first sample period to 0.0222 to second sample period. Both types of fund outclassed the market index since the mean values are all positive for all the period. Then first sample hypothesis testing is provided based on t-test p-values for both Islamic and Conventional Bond funds during two sample periods. Then findings of complete data sample comparison performance is based on the

second samples spanning a period of Dec 2013 to May 2016. The second sample descriptive analysis is provided based on: Descriptive analysis of non-risk adjusted return; Risk adjusted returns Descriptive analysis and Descriptive Analysis of Risks. The second sample hypothesis is also provided based on T-statistical analysis and hypothesis testing is provided based on hypothesis testing of non-risk adjusted return, risk adjusted return hypothesis testing, bond fund risk hypothesis testing and diversification level hypothesis testing.

CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.1. Introduction

A brief wraps up of complete research is provided in this chapter. This chapter is further divided into five sections: in section 5.2 the research process overview is given; the findings of this study are summarized in section 5.3; the conclusion is found in section 5.4 and section 5.5 provides the suggestions and recommendation derived from this research and future work is discussed. Section 5.6 concludes this chapter.

5.2. Research Process Overview

The major aim of this research work was to evaluation the performance and compare both Conventional Bond funds with Islamic Bond funds. To make a fair comparison for the performance of these two types of funds, we considered three critical periods namely first sample period, second sample period and overall sample period. These periods utilised for evaluating inconsistent funds' performance and the impact of economic conditions on these funds.

In this research work, two samples were created and employed. First sample increases bond fund considered in this study and study length by considering all bond funds data spanning period from December 2010 to May 2016. To minimise the market biasness influence or conditions, Jensen index only (that is risk adjust return and market) is employed as the performance measure and for comparing the funds in this sample. Total

bonds funds considered in this sample includes 48 conventional and 20 Islamic Bond funds.

The Second sample in this research is used in a way that allows fair comparison among funds launched during various years when Jensen and Adjusted Jensen, Sharpe and Adjusted Sharpe and Treynor Index are utilised. The second sample give us the control difference in performance of overall market. The bond funds included in this sample are 45 conventional and 18 Islamic Bond funds. Also, observations numbers for these two fund types are 1,440 monthly and 576 monthly NAV data for conventional and Islamic Bond funds respectively.

There are 5 adjusted return measures are used in this study including: Treynor Index, Jensen Index and Adjusted Jensen Index (AJI), Adjusted Sharpe Index (ASI) and Sharpe Index. Monthly NAV data was used for calculation of these measures.

5.3. Findings Summary

T-test finding for series of tests conducted are shown in Table 5.1

Table 5.1
Malaysia Bond Funds findings summary

No	Comparison of performance	Findings
1	1st Sample	
1.1	Conventional vs Islamic	
	- overall period	Insignificant difference
	- 1st sample period	Significant difference- Islamic outperformed by conventional
	- 2nd sample period	Insignificant difference
1.2	1st vs 2nd Period	
	- Bond funds (Islamic)	Insignificant difference
	- Bond funds (Conventional)	Insignificant difference

Table 5.1
Malaysia Bond Funds findings summary (Cont'd.)

No	Comparison of Performance	Findings
2	2nd Sample	
2.1	Conventional vs Islamic (return of non-risk adjusted)	
	- period (overall)	Insignificant difference
	- period (1st)	Insignificant difference
	- period (2nd)	Insignificant difference
2.2	1st vs 2nd Period (non-risk adjusted return)	
	- bond funds (Islamic)	Insignificant difference
	- bond funds (Conventional)	Insignificant difference
2.3	Conventional vs Islamic (risk adjusted return)	
	- period (overall)	Insignificant difference
	- period (1st)	Insignificant difference
	- period (2nd)	Insignificant difference
2.4	1st vs 2nd period risk adjusted return	
	- bond funds (Islamic)	Insignificant difference
	- bond funds (Conventional)	Insignificant difference
2.5	Conventional vs Islamic (risk)	
	- period (overall)	Insignificant difference
	- period (1st)	Insignificant difference
	- period (2nd)	Insignificant difference
2.6	1st vs 2nd period risk	
	- bond funds (Islamic)	Insignificant difference
	- bond funds (Conventional)	The difference is significant -the risk is greater during the second period
2.7	Conventional vs Islamic (diversification)	
	- period (overall)	No significant different
	- period (1st)	The difference is significant – the Islamic Bond fund is more diversified than conventional in normal period.
	- period (2nd)	Significant difference– More diversification is Shown by Islamic compared to Conventional Bond Funds in 2nd period
2.8	1st vs 2nd period diversification	
	- bond funds (Islamic)	Insignificant difference
	- bond funds (Conventional)	Insignificant difference

5.4. Conclusion

Results obtained from 1st sample shows that with careful analysis using Jensen Index, concludes the market adjusted return for Islamic Bonds are larger compared to period of first sample and inverse if true for Conventional Bond funds, however these differences are not found to be significant after performing t-tests. The only noticeable difference between conventional and Islamic Bond funds is observed in period when it is normal in which better performance is from Conventional Bond funds compared to Islamic Bond funds. The findings of this study are reliable since more data is used for sample and performance measurement considers both risk and market.

This study also shows that Islamic Bond funds are not able to match the performance of Conventional Bond funds probably mainly due to short availability of bond funds in market or because of poor treatment of tax since Malaysian government only recently installed Islamic Bond tax neutrality.

Analysis of second sample performed by utilizing non adjusted returns and 5 risk adjusted returns shows that under any conditions of the economy, both types of funds perform same. However, this study also indicates that Islamic Bond funds performance show little improvements in more recent years (2013 onwards), showing they are starting to catch to the performance of Conventional Bond funds.

From a risk point of view, Islamic Bond fund risk is almost comparable to conventional and there is no significant increase in risk because of Malaysian market crisis.

Whereas, the trend of increase in the risk of Conventional Bond fund for second sample period is same as risk increase for first sample period, in other words risk increase for Conventional Bond funds is similar.

5.5 Limitation

The time period used to study the funds was limited as they were limited Islamic Bond funds launched prior to December 2010. Hence, this study only concentrates on a period from December 2010 to May 2016, whereby the results might be more reliable if a longer time period was analyzed.

Besides, this study addressed the returns of risk-adjusted of two bond fund types without considering the funds" size, asset allocations, and geographical allocation, permitted investment classes, management fees, trustee fees, exit fees and performance fees, which might affect the fund's return as well as performance over period of studies.

5.6. Recommendation

5.6.1. Recommendation for Fund Management Companies and Investors

Based on findings of study, it can be comfortably concluded that Islamic and Conventional Bond funds has no performance difference for different periods, be it the first or second sample period. Although, it can be reasonably argued that Islamic Bond funds performed good compared to Conventional Bond funds as revealed in BNM governor statement, there is a risk in performance of Islamic Bond funds due to uncertainty and Shariah

compliance status of Islamic Bonds. This study provides tested evidence that conventional and Islamic Bond funds are similar in performance, although past data showed that Conventional Bond funds performed much better than Islamic Bond funds, but recently this situation has started to turn around. Due to the recent improvement of Islamic Bond funds, their performance showed similarity with Conventional Bond funds, with investors feeling more confident now to select Islamic Bond funds without any fear of low returns on investment even after complying with Islamic law (Shariah Principle).

The Level of diversification and risk adjusted return measurement showed that there is no difference between two fund types, however risk measurement analysis showed that Islamic Bond funds are relatively more stable compared to conventional due to the fact that a calamity situation is not able to effect Islamic Bond funds. This fact also supports the statement of BNM minister regarding Islamic Bond funds stability and thus increases the confidence of investors in Islamic Bond funds and they don't need to be anxious during a downfall of the economy. A recommendation is made for fund management companies to promote both types of funds. However, high risk of conventional funds for both sample periods can be a concern though.

5.6.2. Recommendation for future research

In this study we performed t-test performance comparison of risk, return and diversification. However, some other factors like age and either sovereignty of the fund, be it international or domestic are not controlled in this study. To obtain more reliable findings for Islamic Bond funds with underlying Islamic principles, the performance of funds are evaluated through regression analysis having various controlling variables in the model.

Further, future recommendations include performance analysis on timing and selection for both fund types.

Also, investigation can be done to determine the influence of Islamic Bonds on Malaysian bond market to evaluate the market of Islamic Bonds contribution with the investors.

The study compares Syariah and Conventional Bond funds. Further studies are recommended to make an assessment of Conventional and Syariah bond funds performance for local and international market.

5.7 Summary

This chapter concludes the findings of this thesis and provides future recommendations. Initially we reviewed the overall research process and then summarise the findings of the thesis. A major take out of this thesis is that the only noticeable difference between Islamic and Conventional Bond funds is observed during a "normal period" in which Conventional Bond funds performed much better than Islamic Bond funds. For the future, it is also suggested the further research is needed to analyse Islamic Bond funds and Conventional Bond funds based on securities selection and market timing.

Other areas of future research for performance comparison for both bond funds types should be based on the fund's size and geographical location.

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Appendix A

LIST OF MALAYSIAN APPROVED BOND FUNDS (AS AT 3rd May 2016)

No	Management Company	Fund Name	Launch Date
1	Aberdeen Islamic Asset Management Sdn Bhd	Aberdeen Islamic Malaysia Equity Fund	17/1/2013
		Aberdeen Islamic World Equity Fund	17/1/2013
2	Affin Fund Management Bhd	Affin Islamic Equity Fund	1/8/2007
		Dana Islamiah Affin	11/11/2001
		Affin Islamic Money Market Fund	13/11/2008
3	Amanah Mutual Bhd	AMB Dana Yakin	24/11/2000
		AMB Dana Nabeel	6/7/2011
		AMB Dana Aqeel (Capital Protected) - Series 2	6/3/2014
		AMB Dana Ikhlas	17/9/2002
		AMB Dana Arif	27/4/2004
4	Amanah Saham Kedah Bhd	Amanah Saham Kedah	27/2/1995
5	Amanahraya Investment Management Sdn Bhd	AmanahRaya Islamic Equity Fund	1/3/2007
		AmanahRaya Syariah Trust Fund	21/9/2006
6	AmInvestment Services Bhd	AmIslamic Growth	10/9/2004
		AmOasis Global Islamic Equity	21/4/2006
		Am-Mateen Asia-Pacific Equity	5/5/2011
		AmPrecious Metals	15/11/2007
		Namaa' Asia-Pacific Equity Growth	15/8/2008
		AmIslamic Greater China	1/11/2010
		AmIslamic Fixed Income Conservative	9/1/2012
		AmIttikal	12/1/1993
		AmBon Islam	26/11/2001
		AmAl-Amin	26/11/2001
		AmIslamic Balanced	10/9/2004
		Am-Namaa' Asia-Pacific Equity Growth	11/8/2008
		AmCommodities Equity	12/7/2010
		AmDividend Growth	25/4/2012
		AmASEAN Equity	1/6/2011
		AmDynamic Sukuk	12/6/2012
		AmGlobal Sukuk	3/8/2012
7	Apex Investment Services Bhd	Apex Dana Al-Kanz	18/5/2006
		Apex Dana Al-Faiz-I	28/8/2003
		Apex Dana Aslah	18/9/2000
		Apex Dana Al-Sofi-I	28/8/2003
8	BIMB Investment Management Bhd	BIMB Dana Al-Munsif	27/12/2001
		BIMB i Dividend Fund	18/3/2011
		BIMB Dana Al-Fakhim	27/12/2001
		BIMB Dana Al-Falah	27/12/2001
		BIMB i Flexi Fund	25/3/2014
		BIMB i Growth	30/6/1994
9	CIMB-Principal Asset Management Bhd	CIMB Islamic Equity Fund	8/10/2004
		CIMB Islamic DALI Equity Theme Fund	19/2/2008
		CIMB Islamic Greater China Equity Fund	2/6/2009
		CIMB Islamic Balanced Fund	8/3/2001
		CIMB Islamic Balanced Growth Fund	26/5/2003
		CIMB Islamic Equity Aggresive Fund	15/6/1995
		CIMB Islamic Deposit Fund	9/9/2009
		CIMB Islamic Al-Azzam Equity Fund	1/8/2012
		CIMB Islamic Asia Pacific Equity Fund	2/6/2006
		CIMB Islamic Small Cap Fund	30/4/2003
		CIMB Islamic Sukuk Fund	8/10/2004
		CIMB Islamic Enhanced Sukuk Fund	23/2/2005
		CIMB Islamic Money Market Fund	17/3/2008
		CIMB Islamic DALI Equity Growth Fund	7/5/1998
		CIMB Islamic DALI Equity Fund	30/4/2003
		CIMB Islamic Global Commodities Equity Fund	6/1/2010

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LIST OF MALAYSIAN APPROVED BOND FUNDS (AS AT 3rd May 2016)

No	Management Company	Fund Name	Launch Date
10	Eastspring Investments Bhd	Eastspring Investments Dinasti Equity Fund	26/10/2009
		Eastspring Investments Islamic Income Fund	8/2/2007
		Eastspring Investments Dana Al-Islah	14/8/2002
		Eastspring Investments Dana Al-Ilham	14/8/2002
		Eastspring Investments Dana Dinamik	25/2/2004
		Eastspring Investments Dana Wafi	21/2/2005
		Eastspring Investments Asia Pacific Shariah Equity Fund	22/11/2007
		Eastspring Investments ASEAN Al-Adiil Fund	28/10/2013
11	Hong Leong Asset Management Bhd	Hong Leong Islamic Income Management Fund	26/4/2007
		Hong Leong Dana Makmur	19/11/2001
		Hong Leong Dana Maa'rof	25/3/2003
12	Hwang Investment Management Bhd	Hwang AIIMAN Growth Fund	8/10/2002
		Hwang AIIMAN Income Plus Fund	28/6/2004
		Hwang AIIMAN Select Income Fund	1/3/2013
13	Inter-Pacific Asset Management Sdn Bhd	InterPac Dana Safi	25/7/2007
14	KAF Investment Funds Bhd	KAF Dana Alif	26/2/2003
		KAF Sukuk Fund	1/11/2013
		KAF Dana Adib	25/3/2004
		KAF Dana Al-Iddhikhar	6/10/2005
15	Kenanga Investors Bhd	Kenanga Ekuiti Islam Fund	23/4/2004
		Kenanga Islamic Fund	15/8/2002
		Kenanga Shariah Balanced Fund	23/4/2004
		Kenanga Shariah Growth Opportunities Fund	23/4/2004
		Kenanga Bon Islam Fund	23/4/2004
		Kenanga i-Enhanced Cash Fund	2/8/2007
		Kenanga Islamic Money Market Fund	9/11/2007
		Kenanga Sukuk Fund	
		Kenanga Islamic Balanced Fund	6/12/2004
		Kenanga Syariah Growth Fund	29/1/2002
16	Libra Invest Bhd	Libra SyariahEXTRA Fund	12/3/1996
		Libra Amanah Saham Wanita	5/5/1998
		Libra ASnitaBond Fund	18/3/2005
17	MAAKL Mutual Bhd.	MAAKL Al-Umran	28/3/2006
		MAAKL Al-Ma'Mun	23/1/2007
		MAAKL Shariah Asia-Pacific Fund	16/1/2008
		MAAKL Al-Faid	8/7/2003
		MAAKL-HW Shariah Flexi Fund	18/10/2012
		MAAKL Al-Fauzan	6/9/2005
		MAAKL-CM Shariah Flexi Fund	6/11/2007
		MAAKL Syariah Index Fund	23/1/2002
		MAAKL As-Saad	8/7/2003
		MAAKL-HW Shariah Progress Fund	20/4/2011
18	Manulife Asset Management Services Bhd	Manulife Shariah - Dana Ekuiti	27/5/2013
		Manulife Shariah - Dana Sukuk	27/5/2013
19	Maybank Asset Management Sdn Bhd	Amanah Hartanah Bumiputera	29/11/2010
		Maybank AsiaPac ex-Japan Equity-I Fund	8/1/2014
		Maybank Malaysia Sukuk Fund	8/1/2014
		Maybank Malaysia Equity-I Fund	8/1/2014
20	MIDF Amanah Asset Management Bhd	MIDF Amanah Islamic Fund	14/5/1971
		MIDF Amanah Shariah Money Market Fund	5/4/2004
21	Pacific Mutual Fund Bhd	Pacific Dana Dividen	26/7/2007
		Pacific ELIT Islamic AsiaPac Balanced Fund	5/2/2010
		Pacific ELIT Dana Aman	5/2/2010
		Pacific Dana Imbang	
		Pacific Dana Aman	16/4/1998
		Pacific Dana Murni	25/3/2003
		Pacific ELIT Dana Dividen	5/2/2010
22	Permodalan BSN Bhd	BSN Dana Dividen Al-Ifrah	12/9/2012
		BSN Dana Al-Jadid	18/6/2008
23	Pheim Unit Trusts Bhd	Pheim Asia Ex-Japan Islamic Fund	1/11/2006
		Dana Makmur Pheim	28/1/2002

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LIST OF MALAYSIAN APPROVED BOND FUNDS (AS AT 3rd May 2016)

No	Management Company	Fund Name	Launch Date
24	PMB Investment Bhd	PMB Shariah TNB Employees Fund	28/8/1995
		PMB Shariah Growth Fund	28/12/1972
		PMB Shariah Premier Fund	14/8/1972
		PMB Dana Al-Aiman	9/4/1968
		PMB Shariah Cash Management Fund	1/11/1969
		ASM Syariah Capital Protected Sector Linked Fund	29/11/2011
		PMB Shariah Mid-Cap Fund	20/4/1992
		PMB Shariah Balanced Fund	22/10/1977
		PMB Dana Bestari	17/7/1975
		PMB Shariah Tactical Fund	29/10/1979
		PMB Shariah Dividend Fund	21/7/2008
		PMB Shariah Index Fund	19/2/1969
		PMB Shariah Aggressive Fund	5/5/1972
		PMB Dana Mutiara	2/2/1970
25	PTB Unit Trust Bhd	Amanah Saham Darul Iman	31/10/1994
26	Public Mutual Bhd	PB Islamic Asia Equity Fund	8/1/2007
		Public Ittikal Fund	10/4/1997
		PB Islamic Asia Strategic Sector Fund	6/9/2007
		PB Islamic Cash Management Fund	8/5/2007
		Public China Ittikal Fund	20/11/2007
		Public Islamic Select Treasures Fund	26/2/2008
		Public Islamic Infrastructure Bond Fund	16/11/2010
		Public Islamic Strategic Bond Fund	30/12/2010
		Public Sukuk Fund	19/7/2011
		Public Islamic Savings Fund	15/12/2011
		Public Islamic Equity Fund	28/5/2003
		Public Islamic Mixed Asset Fund	20/9/2005
		Public Islamic Asia Dividend Fund	3/4/2007
		Public Islamic Income Fund	14/8/2008
		Public Islamic Asia Leaders Equity Fund	19/1/2010
		Public Islamic Alpha-40 Growth Fund	16/11/2010
		Public Islamic Treasures Growth Fund	19/7/2011
		Public Islamic Enhanced Bond Fund	28/11/2006
		Public Asia Ittikal Fund	22/8/2006
		Public Islamic Bond Fund	15/8/2001
		PB Islamic Equity Fund	5/9/2005
		PB Islamic Bond Fund	16/3/2006
		Public Islamic Select Bond Fund	10/7/2007
		Public Islamic Sector Select Fund	13/11/2007
		Public Islamic Optimal Growth Fund	8/4/2008
		PB Sukuk Fund	6/9/2011
		PB Aiman Sukuk Fund	10/9/2013
		Public Islamic Asia Tactical Allocation Fund	21/8/2007
		Public Islamic Opportunities Fund	28/6/2005
		Public Islamic Dividend Fund	14/2/2006
		Public Islamic Money Market Fund	5/6/2007
		Public Islamic Select Enterprises Fund	14/8/2008
		Public Ittikal Sequel Fund	11/10/2011
		Public Islamic Growth & Income Fund	7/1/2014
27	RHB Asset Management Sdn Bhd	RHB-OSK Dana Islam	26/10/2001
		RHB-OSK Dana Kidsave	18/2/2013
		RHB-OSK Islamic Growth Fund	26/1/2004
		RHB-OSK Institutional Islamic Money Market Fund	1/11/2007
		RHB-OSK Islamic Cash Management Fund	30/6/2008
		RHB-OSK Islamic Enhanced Cash Fund	28/6/2011
		RHB-OSK Asia Pacific Maqasid Fund	23/2/2010
		RHB-OSK Islamic Regional Balanced Fund	8/4/2014
		RHB-OSK Mudharabah Fund	9/5/1996
		RHB-OSK Muhibbah Income Fund	12/3/2007
		RHB-OSK Islamic Bond Fund	25/8/2000
28	RHB Islamic International Asset Management Bhd	RHB-OSK iCash Fund	18/8/2011
		RHB-OSK Global Food Islamic Equity Fund	11/8/2011

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LIST OF MALAYSIAN APPROVED BOND FUNDS (AS AT 3rd May 2016)

No	Management Company	Fund Name	Launch Date
29	TA Investment Management Bhd	TA Islamic Fund	24/4/2001
		TA Islamic CashPLUS Fund	6/6/2005
		TA Dana OptiMix	17/1/2005
		TA Asia Pacific Islamic Balanced Fund	7/11/2006
		TA BRIC and Emerging Markets Fund	25/2/2010
		TA Dana Fokus	17/6/2008
30	Affin Fund Management Bhd	Affin 2-iWholesale Fund	15/1/2013
		Affin 4-iWholesale Fund	15/1/2013
		Affin 1-iWholesale Fund	18/7/2012
		Affin 3-iWholesale Fund	15/1/2013
31	Amanahraya Investment Management Sdn Bhd	AmanahRaya Islamic Cash Management Fund	26/11/2007
32	AmIslamic Funds Management Sdn.Bhd.	AmIslamic Income Jadwa	30/7/2010
		AmIslamic Institutional 1	27/12/2011
		AmCash Institutional 3	17/8/2012
		AmIslamic Income Premium	21/5/2010
33	Asian Islamic Investment Management Sdn. Bhd.	AIIMAN Cash Plus Fund	18/9/2009
34	BIMB Investment Management Bhd	BIMB Invest Money Market Fund	27/4/2009
		BIMB i Cash Management Fund	28/11/2011
35	CIMB-Principal Asset Management Bhd	CIMB Islamic Wholesale Money Market Fund	10/9/2012
		CIMB Islamic Corporate Deposit Fund 1	1/11/2013
		CIMB Islamic Institutional Sukuk Fund	8/4/2009
36	Corston-Smith Asset Management Sdn Bhd	Corston-Smith ASEAN Shariah Corporate Governance Fund	29/7/2009
37	Eastspring Investments Bhd	Eastspring Investments Dana al-Hafeez	9/12/2008
38	Hong Leong Asset Management Bhd	Hong Leong Islamic Institutional Income Management Fund	4/12/2012
		Hong Leong Islamic Institutional Income Management Fund II	22/4/2013
		Hong Leong Islamic Institutional Income Management Fund III	
		Hong Leong Islamic Cash Fund	
		Hong Leong Islamic Enhanced Cash Fund	
		Hong Leong Islamic Cash Management Fund	4/12/2013
39	Hwang Investment Management Bhd	Hwang AIIMAN Cash Fund	22/8/2006
		Hwang AIIMAN Enhanced Income Fund	3/5/2011
		Hwang AIIMAN Cash Fund IV	14/3/2014
		AIIMAN Cash Fund II	28/10/2011
		Hwang AIIMAN Cash Fund III	
40	i-VCAP Management Sdn Bhd	i-VCAP Shariah Money Market Fund	15/3/2011
41	KAF Investment Funds Bhd	KAF Islamic Money Market Fund	27/5/2011
		Alliance Islamic Institutional Money Market Fund	19/11/2008
42	Kenanga Investors Bhd	Kenanga Absolute Return Shariah Fund	6/8/2007
		Kenanga Islamic Income Fund Series - Fund 1	25/11/2011
		Kenanga Islamic Income Fund Series - Fund 2	29/6/2012
		Kenanga Islamic Income Fund - Series 3	
		Kenanga Sukuk Wholesale Fund - Series 1	
		Kenanga Islamic Income Fund - Series 4	
		Kenanga Islamic Cash Fund	
		Kenanga Islamic Income Fund - Series 5	
43	KFH Asset Management Sdn Bhd	KFH iCash Investment Fund	27/3/2013
44	Libra Invest Bhd	Libra AMMAR Income Fund	21/2/2011
		Libra Shariah Liquidity Fund	14/3/2014
		Libra Dana Safa	1/12/2009
45	Maybank Asset Management Sdn Bhd	Maybank Shariah Enhanced Cash Fund	30/11/2008
		Maybank Institutional Islamic Money Market Fund	7/5/2013
		Maybank Shariah Money Market Fund 1	23/5/2013
		Dana Najiyah MIM	9/11/2009
		Maybank Shariah Money Market Fund 2	20/2/2012
46	MIDF Amanah Asset Management Bhd	MIDF Amanah Shariah Income Fund	30/4/2014
47	Muamalat Invest Sdn Bhd	Muamalat Invest Dana Al-Ikhwan - Money Market	19/12/2012
		Muamalat Invest Dana Al-Ikhwan - Series 4	27/3/2014
		Muamalat Invest Dana Al-Ikhwan - Series 3	20/11/2013
		Muamalat Invest Dana Al-Ikhwan - Series 2	30/8/2013
		Muamalat Invest Dana Al-Ikhwan - Series 5	28/4/2014
48	Nomura Islamic Asset Management Sdn Bhd	Nomura i-Cash Fund	7/11/2012
		Nomura i-Income Fund	7/11/2012

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LIST OF MALAYSIAN APPROVED BOND FUNDS (AS AT 3rd May 2016)

No	Management Company	Fund Name	Launch Date
49	Opus Asset Management Sdn Bhd	Opus Shariah Cash Management Fund	
		Opus Shariah Income Fund	18/9/2013
		Opus Shariah Cash Extra Fund	18/1/2010
50	Permodalan BSN Bhd	BSN Dana i-Cash	21/6/2013
51	Phillip Capital Management Sdn Bhd	Phillip Islamic Money Market Fund	31/7/2012
52	PMB Investment Bhd	ASM Shariah Wholesale Income Fund I	
53	Public Mutual Bhd	PB Islamic Cash Plus Fund	30/1/2008
54	RHB Asset Management Sdn Bhd	RHB-OSK Islamic Income Plus Fund 2	26/5/2011
		RHB-OSK Islamic Income Plus Fund 5	28/2/2014
		RHB-OSK Islamic Income Plus Fund 4	19/9/2011
		RHB-OSK Islamic Income Plus Fund 1	3/9/2009
55	RHB Islamic International Asset Management Bhd	OSK-UOB Islamic Wholesale Fund - Series 1	13/7/2012
56	Saturna Sdn Bhd	ASEAN Equity Fund	7/2/2014